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# Original Contributions

## Obstruction of the Alimentary Tract in the Neonatal Period

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**O**BSTRUCTION of the alimentary canal in the first four weeks of life is rare enough to be forgotten easily but common enough to be part of the experience of almost any physician whose practice includes treatment of babies. Sometimes, as in babies who have atresia of some part of the gastrointestinal tract, the presence of obstruction requiring surgical treatment is obvious soon after birth. On other occasions, the presence of vomiting and abdominal distention in the absence of complete obstruction can make it difficult to decide whether or not an operation is indicated. Newborn infants are well able to tolerate even extensive operative procedures on the gastrointestinal tract if such operations are performed when the children have the proper balance of fluid and electrolytes and before they have become depleted by starvation. Undue delay in necessary surgical intervention leads to higher operative mortality rates. Accurate and prompt preoperative diagnosis presupposes a working knowledge of the entities likely to produce obstruction in children in this age group, just as adequate surgical treatment demands the ability to recognize the various lesions at the operating table and to apply appropriate treatment.

The purpose of this presentation is to discuss broadly the usual causes of obstruction of the alimentary tract in the neonatal period and to indicate the operative remedies that have been found most effective for each. A list of entities most likely to be encountered is presented in Table I and will serve as a framework for the discussion. The first four conditions listed permit accurate

diagnosis and the surgeon ordinarily knows the cause of obstruction before operation. The exact diagnosis in the remaining conditions may be suspected or even fairly certain but it is often impossible to make it preoperatively.

TABLE I. COMMONER CAUSES OF OBSTRUCTION OF THE ALIMENTARY TRACT IN NEWBORNS

Atresia of the esophagus
Hypertrophic pyloric stenosis
Malformations of the anus
Incarcerated hernia (inguinal or diaphragmatic)
Atresia or stenosis of the intestine
Incomplete rotation of the midgut
Meconium ileus
Duplications of the intestinal tract
Obstruction associated with Meckel's diverticulum
Annular pancreas
Aganglionic disease of the colon

### Atresia of the Esophagus

Atresia of the esophagus means complete interruption of the lumen of the gullet, an anomaly that rarely occurs alone, usually being encountered in conjunction with a fistula between the esophagus and the trachea. The upper segment of the esophagus ends blindly and the lower end communicates with the trachea in more than 90 per cent of cases. In the few remaining cases, either the upper segment or both segments join the trachea. In the common variety, air from the trachea has ready access to the intestines, which promptly acquire the normal gas pattern visible on roentgenologic examination. What is more important, gastric contents and spilled-over saliva are prone to enter the respiratory tract, where they cause pneumonitis. It is of great importance that the diagnosis be made early so operation can be performed before widespread pneumonitis increases the risk to the patient.

The two signs that should make one think of possible atresia of the esophagus are excessive salivation and apparent inability to swallow. Salivation is almost continuous. Although babies so

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affected usually try to eat, swallowing is followed by coughing and cyanosis. Faced with this situation, the physician should try to pass a small rubber catheter into the esophagus. If its progress is blocked in the upper part of the thorax, esophageal atresia may be present. A few drops of iodized oil injected into the catheter before a roentgenogram is made will delineate the blind end of esophagus and usually will demonstrate the absence of a fistula between this blind end and the trachea. If the roentgenogram also shows air in the intestines, as it usually does, the presence of a fistula between the trachea and the lower end of the esophagus is established (Fig. 1). Use of excessive amounts of iodized oil is to be avoided.

If untreated, children who have this disorder die in a week or so of pneumonia and starvation. The earlier the diagnosis is made, the better is the child's condition likely to be and the better are his chances to survive operation.

Once the diagnosis is made, the baby should be placed in a semisitting position with suction applied continuously to the esophagus to minimize the chance for secretions to enter the lungs; antibiotics should be administered, oxygen should be provided by means of a tent or incubator and an attendant should be constantly present to clear the mouth of secretions, should they accumulate. If the diagnosis has been made late, time may be required for the pneumonitis to improve and for hydration by intravenous injection of fluids.

In the earliest era of surgical treatment, successes were few and far between and followed an interminable and expensive series of operations in which the gullet was exteriorized in the neck, the tracheo-esophageal fistula closed, gastrostomy performed and a subcutaneous channel constructed between the esophagus and stomach. This cumbersome method has been abandoned in all but a few unusual cases in favor of one-stage closure of the fistula and end-to-end anastomosis of the esophagus performed as soon as possible after birth. At the present time, a survival rate of 50 per cent appears acceptable, although better results have been reported.<sup>1</sup> Haight,<sup>2</sup> who was instrumental in introducing the one-stage operation for tracheo-esophageal fistula, recently reported recovery in ninety-four (58.7 per cent) of 160 patients operated on between 1939 and 1955. Fifty-one (67.1 per cent) of seventy-six patients operated on during the last five years recovered. Seven died later, leaving forty-four (57.8 per cent)

of the original group living. Survivors do exceedingly well. Perhaps a third will need occasional dilatation of the esophagus during the first year or so of life.

### Hypertrophic Pyloric Stenosis

Hypertrophic pyloric stenosis, the most frequently occurring lesion on this list, is the familiar obstructing hypertrophy of the muscle in the pyloric region; it is commoner in boys than in girls. Vomiting seldom occurs before the tenth day of life and the vomitus virtually never contains bile; these facts are of great aid in differentiating pyloric stenosis from atresia and pronounced stenosis of the intestine, in which vomiting is present soon after birth, and from other causes of obstruction distal to the ampulla of Vater, in which vomitus containing bile is regularly present. Presence of visible peristaltic waves passing from left to right across the upper part of the abdomen after feeding is typical. With persistence, the pyloric tumors usually can be palpated. The Ramstedt operation of pyloromyotomy, in which the serosa and muscularis on the anterior aspect of the pyloric tumor are incised longitudinally to allow the underlying mucosa to bulge into the defect, carries a post-operative mortality rate of less than 1 per cent and gives results that are among the best in the realm of surgical treatment.

### Malformations of the Anus

The embryo passes through a period in which the urogenital tract and the intestine share a common cloaca separated from the exterior by a cloacal membrane. The genitourinary system and the rectum normally become separated completely and the rectum gains its normal opening in the perineum. Arrest of this process can produce a variety of malformations estimated to occur once in 5,000 births. The classification of imperforate anus of Ladd and Gross<sup>3</sup> is useful in organizing these disorders. This distinguishes four main types as follows: Type 1, stenosis at the anus (6 per cent); Type 2, membrane obstructing anus (3 per cent); Type 3, imperforate anus with rectum ending above it (87 per cent) and Type 4, normal anus with rectal pouch ending blindly above it (4 per cent).

In about 70 per cent of cases, the anomalies have associated fistulas connecting the rectum with the urinary tract, vagina or perineum. Such fistulas occur in about 15 per cent of Type 1 and



Type 2 abnormalities and in about 80 per cent of Type 3 malformations. In males, the fistulas are rectovesical, rectourethral or rectoperineal. In females, the fistulas are between the rectum and the vagina, or the rectum and the perineum.

The Type 1 anomaly, anal stenosis, is usually treated best by dilatation, although anoplasty occasionally may be necessary.

The Type 2 anomaly is treated by incising or excising the obstructing anal membrane, keeping the anus patent by dilatation afterwards.

The Type 4 anomaly sometimes can be treated by incision per rectum followed by dilatation if the upper segment is near enough to the lower one. In other cases, an abdominoperineal operation with anastomosis performed perineally after Swenson's technique is the preferable definitive operation; temporary colostomy may be the best way to tide the infant over the first nine months or year of life.

Some Type 3 anomalies can be treated by means of a perineal approach, whereas others require a combined abdominoperineal operation. In general, if the rectal pouch is within 1.5 cm. of the perineal skin or if a rectoperineal or low recto-vaginal fistula is present, repair from the perineal approach is possible and should be done as a primary procedure. In the other cases, one either can perform colostomy and defer the definitive operation or can carry out the abdominoperineal pull-through procedure at birth. The one-stage procedure is probably preferable when good anesthesia for newborn infants is available, when the surgeon's experience in both the technical details of such operations and the rather exacting post-operative care justifies it, and when the baby is lusty, weighs more than 6 pounds and has no other serious anomalies to increase the risk. Any fistulas with the vagina or the urinary tract are disconnected at this time. Colostomy is still a good operation when circumstances justify it. Use of the transverse colon leaves the sigmoid free for later use but probably is followed more frequently by prolapse than is sigmoid colostomy. The latter is satisfactory if it is done as near the descending colon as possible.

#### Incarcerated Hernia

Incarcerated inguinal hernia needs no explanation. Its presence should be obvious if it is sought. Treatment, if attempts at reduction fail, consists of surgical reduction and repair of the hernia.

If the hernia can be reduced, often with the aid of sedation, it is advantageous to allow a day or so to pass before repair is attempted, since the edema of the sac that regularly accompanies in-



Fig. 1. Plain roentgenogram from a newborn infant with atresia of the esophagus and a tracheo-esophageal fistula. The catheter and iodized oil delineate the blind end of the upper portion of the esophagus. The presence of air in the intestine proves that the lower end of the esophagus communicates with the respiratory tree.

carceration makes the tissues friable and somewhat more difficult to handle than is the case when repair is elective.

Congenital diaphragmatic hernias, usually through the posterolateral portion of the diaphragm, may allow varying portions of the liver, spleen, stomach, small intestine and colon to migrate into the right or left thoracic cavity. Vomiting caused by obstruction may be present, although cyanosis and dyspnea due to compression of a lung are often more prominent findings. The diagnosis can be made readily by plain roentgenograms, which show evidence of abdominal viscera in the thorax. Surgical repair of the hernial opening should be carried out through an abdominal approach as soon as possible.

### Less Obvious Causes of Obstruction

Once patency of the esophagus and anal canal is demonstrated and the presence of pyloric stenosis and hernias is excluded, one can assume that the newborn child who vomits either has a feeding problem that may respond to changes in the formula or has one of the other types of organic obstruction listed in the table. The task of differentiating infants for whom laparotomy is indicated from those for whom medical measures should be employed can be difficult at times, but the severity and unremitting nature of the obstructive symptoms in babies with organic obstruction make the decision to operate clear in most cases. Once the signs and symptoms have suggested intestinal obstruction, plain roentgenograms of the abdomen taken with the child in the upright and supine positions become the mainstay of diagnosis. Although it occasionally may be necessary to introduce barium sulfate into the stomach or colon, use of a contrast medium is unnecessary in most instances. Characteristics of these roentgenograms will be mentioned as the various lesions are discussed.

*Atresia or Stenosis of the Intestine.*—Either atresia, meaning complete loss of continuity, or stenosis may occur in any part of the small intestine or colon; multiple sites occasionally are involved. Atresia of the intestine always produces symptoms of obstruction at once; stenosis usually causes symptoms in the first few weeks of life but may be of such modest proportions that trouble does not occur for a year or more. Plain roentgenograms of the abdomen usually will show gas scattered widely throughout the gastrointestinal tract when stenosis is present at some point. If the stenosis is sufficient to produce symptoms of obstruction, dilatation of part of the alimentary canal above the lesion usually is present. In these cases, study by means of barium can be revealing. When atresia is present, gas can go no farther than the atretic segment and, particularly when the atresia is in or above the midjejunum, the roentgenogram can be diagnostic (Figs. 2 and 3).

Treatment is surgical in either of the situations just described. The intestine beyond the site of stenosis is typically large enough that side-to-side anastomosis between it and the dilated intestine above can be done without difficulty. Stenosis of

the duodenum below the papilla of Vater is best handled by duodenojejunostomy, whereas that above the papilla requires gastroenterostomy. When atresia is present, the intestine distal to the atresia is empty and extremely small, while that proximal to it is hugely distended. Even after the dilated segment has been decompressed and the other segment distended with saline, considerable disparity remains between the sizes of the two. Because of this, side-to-side anastomosis naturally was favored by most surgeons. Gross<sup>3</sup> noted that, although good results frequently were obtained when jejunal atresia was treated by this method, fatality rates for anastomosis in the ileum were extremely high. He obtained better results by exteriorizing the two blind ends as a double-barreled ileostomy, clamping the spur between the ends later by the old Mikulicz technique and finally closing the ileal stoma. Others<sup>4-7</sup> favor primary anastomosis with decompression of the proximal loop of intestine by means of an enterostomy tube and end-to-end union of the parts despite the difference in their sizes.

*Incomplete Rotation of the Midgut.*—During intra-uterine life, the midgut undergoes rotation in a counterclockwise direction, with the superior mesenteric vessels as its axis. As a result of these movements, the cecum comes to lie in the right lower quadrant of the abdomen and the transverse colon comes to lie in front of the superior mesenteric vessels and duodenum. Fusion of the root of the mesentery of the small intestine and that of the right portion of the colon to the posterior body wall follows this process and establishes the normal anatomic state. This process can be interrupted at any stage. The result sometimes is relatively unimportant, as when the cecum is unusually mobile, whereas at other times it is productive of intestinal obstruction. The latter may or may not be severe enough to cause recognizable trouble during the neonatal period.

Obstruction can be caused by either or both of two mechanisms, namely volvulus of the entire small intestine, made possible by the lack of attachment of its mesentery to the posterior body wall, and obstruction of the duodenum caused by extrinsic pressure applied to it by a band of fibrous tissue attaching the misplaced cecum to the body wall to the right of the duodenum. Described by Ladd,<sup>8</sup> in 1933, this attachment is often referred to as Ladd's band. Obstruction caused by incom-

plete rotation of the gut may appear complete in some instances of volvulus or it may present as incomplete obstruction of the duodenum when Ladd's band is the prominent factor. Roentgeno-

on their right and displaced to the left side of the abdominal cavity, thus reproducing an earlier stage of embryologic development. This completely liberates the duodenum. Failure to do this may

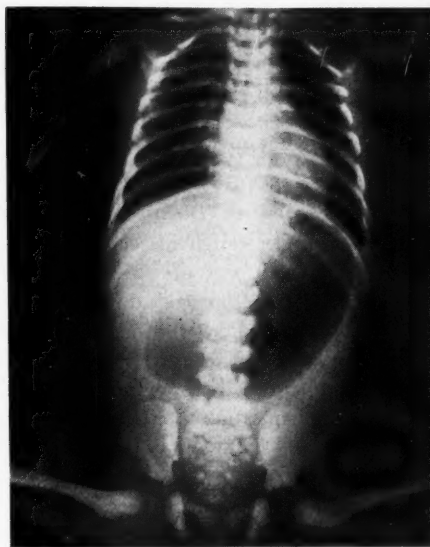


Fig. 2. Plain roentgenogram from a newborn infant with atresia of the duodenum. The gas shadows are limited to the stomach and the first portion of the duodenum.



Fig. 3. Plain roentgenogram from a patient with atresia of the jejunum. Gas is evident in the stomach, duodenum and part of the dilated jejunum, but the usual pattern of gas scattered throughout the small intestine is not present.

logic examination of the colon and the duodenum with the aid of barium sulfate can be helpful if the symptoms are mild enough that indications for surgical intervention are not clear-cut. When it is obvious that an operation is needed, my associates and I choose to spare the infant the stress of these tests.

When the abdomen is opened, one sometimes finds the cecum in the epigastrium or even to the left of the midline and one sometimes finds all the colon hidden by small intestine, which may be of dusky color as the result of volvulus. When this small intestine is delivered from the wound, it is seen to be twisted, usually in a clockwise direction, around its mesentery. The volvulus should be reduced. The picture can be confusing; one must not conclude erroneously that some kind of internal hernia is present and begin fruitless dissection with this in mind. Once the volvulus has been reduced, the cecum and ascending colon in all cases must be freed of attachments

mean continuation of obstruction. For some reason, recurrence of volvulus is rare.

**Meconium Ileus.**—This is a form of intestinal obstruction in the newborn in which the terminal portion of the ileum is plugged and obstructed by unbelievably sticky mucilaginous meconium. It is part of a more widespread disorder, including fibrocystic disease of the pancreas and production of extremely thick sticky mucus in the intestinal and respiratory tracts. The great diminution in secretion of digestive enzymes by the pancreas is credited with allowing the meconium to become viscid enough to obstruct the gut. If the child can be tided over this crisis, he will have nutritional difficulties because of poor absorption of food and will have chronic infection of the respiratory tract. In many cases, the former condition can be controlled fairly well by oral administration of pancreatic extracts and the latter by use of antibiotics. Plain roentgenograms of the

abdomen in this condition may show a disparity between the size of loops of distended small intestine, associated with the presence of tiny flecks of calcium. Masses sometimes can be palpated in the abdomen.

Perforation of the intestine occasionally has occurred before operation can be performed; perhaps it can happen prenatally. If this is the case, the peritoneal cavity may be obliterated, with dense adhesions causing agglutination of loops of intestine. The outlook in such cases is hopeless. In other cases, the technical problem is one of relieving the obturating obstruction in the terminal part of the ileum. Efforts to remove sticky meconium from the intestine usually fail, although some successes have been reported.<sup>9</sup> Gross<sup>8</sup> has reported better results after removal of the dilated portion of ileum that contains the semi-solid meconium by means of the aseptic Mikulicz exteriorization technique already mentioned. The proximal opening serves as the ileal stoma, whereas the distal opening is an orifice into which solutions of enzymes can be perfused to clear the distal part of the ileum and the colon of meconium. The spur is clamped and the opening is closed later.

*Duplications of the Alimentary Tract.*—These duplications, sometimes called "enterogenous cysts," may occur any place in the alimentary canal. They vary in shape from small or large spherical structures closely attached to the gut to long tubular organs paralleling the intestine. Some are closed, whereas some communicate with the intestine and are, therefore, like diverticula. Obstruction is only one of several ways in which these structures can produce symptoms. When obstruction occurs, it is usually because a tensely filled cyst attached to the gut applies pressure to it. Only twenty of sixty-eight patients reported on by Gross<sup>8</sup> required treatment during the first four weeks of life. Duplications of the intestine are best excised. Usually they are in such close contact with the intestinal tract, sharing its blood supply, that adjacent intestine also must be removed.

*Meckel's Diverticulum.*—An occasional example of Meckel's diverticulum has a fibrous cord attaching its tip to the navel or to the root of the mesentery. Loops of small intestine can become incarcerated behind or around such a band to become obstructed or even gangrenous. The situation is dealt with as it would be in the adult.

*Annular Pancreas.*—A rare disturbance in the embryologic development of the pancreas causes a ring of pancreatic tissue to surround the second portion of the duodenum. This anomaly may be asymptomatic, may cause mild obstruction noted only in adult life or may produce a high degree of obstruction of the duodenum, requiring treatment in the neonatal period. Duodenojejunostomy gives good results, being preferable to gastroenterostomy and probably to direct attack on the constricting ring.

*Aganglionic Disease of the Colon.*—Congenital absence of ganglionic cells in Auerbach's plexus in the distal part of the colon, the anomaly that causes Hirschsprung's disease, or aganglionic megacolon, and that is always associated with obstipation in the neonatal period, may produce virtually complete obstruction with diffuse distention of the entire small intestine and proximal portion of the colon. When gross lesions cannot be found at laparotomy for intestinal obstruction in a newborn infant, one must think of this disease. Megacolon develops later as a result of obstruction offered by the faulty terminal segment of colon and is not present at birth. Extramucosal biopsy of the rectosigmoid may provide the diagnosis, since the ganglionic cells will be absent in Auerbach's plexus between the circular and longitudinal layers of muscle. Often the diagnosis will be presumptive, however, and one is justified in making a transverse loop colostomy in such cases, planning to carry out Swenson's operation later.

### Summary

A review has been made of pertinent points concerning the various types of obstruction of the alimentary canal likely to be encountered during the neonatal period. Such information is essential to the physician and surgeon who must diagnose these conditions and treat the children so affected. The safety factors in the surgical treatment of such infants are smaller than they are in adults. Experienced anesthesiologists and an understanding of the management of fluid and electrolytic balance in infants are essential to success. Although disappointments are common and although multiple and sometimes hidden anomalies other than the one being treated can thwart success, good results often are achieved and are extremely gratifying.

(References on Page 275)



# Treatment of Varicose Veins

## A Twenty-five Year Reflection

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TIME, and time alone, will give the best and most conclusive answer to all questions relative to the value of any method of treatment in the field of medicine. It is the checking up on our work and end results from year to year that finally permits us to say, with conviction: "This is the best method of treatment today." After twenty-five years of treating varicose veins, we can assess our end results and say "This is the best method of treating varicose veins as of today."

Even before the days of Hippocrates, varicose veins were recognized as a cause of pain and disability. Probably no pathological condition has received more study and effort at correction than has varicose veins. The early efforts were incorrect and held a high mortality rate, and the modern era of treatment really dates from the invention of the hypodermic syringe by Dr. Pravaz in 1854.

The next great step was in 1892 when Trendelenburg<sup>1</sup> recognized and proved the reverse flow of blood in the varicose veins by the test that now bears his name. During intervening years efforts for the elimination of the varicose veins have included in the main injection and operative methods. First one would be claimed the better and then the other. Each era and cycle would be an improvement over the other. The solutions used for the injection treatment were corrosive and destructive. In 1908 some countries forbade their use. Study and research have corrected many of the errors, and today we inject varicose veins with impunity, and for the selected case it is the ideal method.<sup>2,3</sup>

Following the Trendelenburg teachings several distinguished surgeons such as Charles Mayo, Babcock, Homans, Matas and others spent much effort developing operative methods for the removal of the varices. Their efforts were attended by high mortality rates due to thromboembolism.

It was Sicard in 1914 and Linser in 1921 that

first developed the idea of ambulation following the treatment. Their injection treatments were carried out as outpatient services. It was their improved results in comparison with those following surgery that impelled me to carry on.

TABLE I.

1932 through 1949
5791 Ligations with retrograde injection and follow-up injections.
1950 through October, 1955
5147 Ligations with stripping and follow-up injections.

In 1928 my short term results were so good that I advocated the injection treatment of all cases of varicose veins.<sup>4</sup> As time went by I realized my error after seeing many moderate cases and almost all of the severe cases recurring. Still these efforts and successes were an improvement over anything done before. My sixty-fifth case died of a pulmonary embolus but the pathologist who did the autopsy decided the embolus most probably came from a pelvic infection which she had at the time.

During this same time surgeons were correcting their errors and doing better work with the consequent reduction of pulmonary emboli.

The next forward step was a combination of the two methods of treatment, doing a ligation of the veins in cases of proven reverse flow, and the use of the injections to obliterate the veins below.<sup>5,6</sup> It was only after years of work that surgeons realized that the best end results were achieved with the ligation high "above" all tributaries and flush with the wall of the femoral vein at the sapheno-femoral junction.

John Homans<sup>7</sup> was the first surgeon to emphasize this particular bit of technique. To him we must give credit for laying the foundation for our present-day success. Numerous papers were written on the subject of the *new* and *modern* treatment of varicose veins by doing the high sapheno-femoral ligation followed either immediately or later with injection of the distal segments.<sup>5,8</sup> Sev-

Presented before the Hollywood Academy of Medicine, Hollywood, California, September 9, 1954.

eral movies<sup>9</sup> were made to show the detailed technique, and we thought we had reached the ultimate in the treatment of varicose veins.

During the period of 1945 to 1947 I tried to assess my results, not in periods of months, but of years. Even though we had tried to do the best surgery we could with careful follow-up injections in all cases, we often found complete failure with the ligation and retrograde injection treatment of varicose veins. They often recanalized and became as large as when first seen.

Further study of these cases would often show a good sapheno-femoral ligation with the proximal stump closed but with the percussion pulse (P.P.T.) felt through the lower thigh and disappearing in the mid or upper thigh. The multiple tourniquet test would show that the reverse flow came from the mid or upper thigh but not from the groin. In many cases we found the reverse flow was from a perforator vein in the lower leg. We then started picking up the recanalized vein internal to the knee and passing the stripper upward. To our surprise we found it would often pass up to the fibrosed segments just below the main scar at the groin. The stripping of this segment upward would often reveal a perforator or communicating vein in the mid or upper thigh. In passing the stripper downward we found many perforator veins in the lower leg as a cause of recanalization.<sup>10</sup> This stimulated greater study to locate the perforator or communicating veins before any surgery was done, and we found that with more careful examination the incompetent perforator veins could usually be located and marked before the primary operation was done.<sup>11</sup> This combination of a careful preoperative examination and study of each individual case followed by "adequate" surgery for the case at hand and then the use of injection treatment for the scattered and remaining small, tortuous, varicose segments, has produced a good and lasting result in practically all cases.

"Adequate" surgery, mentioned above, refers to a ligation flush with the femoral vein above all tributaries, followed by stripping and dissection of all the main varicosed segments below, with injection of all small scattered tortuous segments remaining.<sup>12,13</sup> A simple high ligation by itself, as advocated by some surgeons, has proved to be a failure in so many cases that it can be mentioned only to be condemned.<sup>14</sup>

It must be stated at the outset that we believe

that the great majority of varicose veins are best explained by a weakness of the vein wall, permitting it to dilate and thus render the valves incompetent, permitting the reverse flow of blood.<sup>15,16</sup> We do see some cases of congenital varicose veins, and instances of congenital arterio-venous fistulas occur. In other cases there has been a destruction of the valves in the veins by phlebitis. Any of these factors render the veins more vulnerable to the increase of the intra-abdominal pressure associated with work, heavy lifting and pregnancy. Moreover, if the weakness persists, we must expect additional varicose veins to form as the years go by. Experience has proven this to be true.<sup>17</sup>

Varicose veins occurring during pregnancy may be an aggravation of pre-existing varicosities, but many cases with rapid formation and development must be explained on some other basis.<sup>17</sup>

There is much evidence in support of the theory that the smooth muscle and connective tissue of the body loses its tone and relaxes with pregnancy. The vulvar muscles and pelvic ligaments also relax. Pregnant women often develop a hydro-ureter many times the size of a normal ureter and yet it will rapidly return to normal following delivery. The urological examination does not reveal evidence of pressure and obstruction to account for this. Often varicose veins develop rapidly over the thighs and lower legs during the second and third month of a pregnancy. At that period of gestation the uterine fundus is not large enough to cause either obstruction of the ureter or of the venous flow from the lower extremity.

This can perhaps be best explained on a hormonal basis.<sup>18</sup> The intramuscular administration of ovarian hormones (Estro Luteum Solution, Lincoln Laboratories) has given marked relief of the pressure, pain and fullness in many cases.<sup>19</sup>

The best results are obtained when the hormone therapy is started before the third month and continues through the sixth month. The usual methods of relief, elastic bandages on the lower legs with elevation of the lower extremities for twenty minutes three times a day, should be continued.

Probably the foremost point in the treatment of varicose veins is the individualization of therapy to the particular needs of the patient. Each patient must be studied separately with a detailed history and thorough examination. Venous pa-

thology must be differentiated from arterial pathology. Individuals with familial, hereditary varicose veins must be given a different prognosis than those with the postphlebotic syndrome. Individuals with stasis edema must not be classified in the same category as those with lymphedema or lipedema. Swelling may be due to incompetent veins, hypothyroidism or cardiorenal disease. The pain may be due to varicose veins, arthritis, slipped disc, or local inflammation. Differential diagnosis is just as important in peripheral vascular disease as it is elsewhere.

The history of onset is important. Did the trouble come on gradually or rapidly; at what age; was there an injury, illness or operation about the same time; was a pregnancy involved?

The majority of patients seen by the vascular surgeon are at least middle aged, although the condition may have been present for several years. This age group can have arterial or venous disease, or both. The typical patient with arteriosclerosis gives a history of cold extremities and claudication; the pain comes on after walking a fairly definite distance and disappears within a few minutes after the patient stops walking. Night pain and ulceration are late manifestations. Examination of the arteriosclerotic lower leg usually reveals a pale, dry skin, often resembling parchment. A cold, wet, clammy skin usually indicates vasospasm.<sup>21</sup> Rubor, especially of the toes and especially near an infected ingrown toe nail, is common. Trophic changes include loss of hair and ridged nails. The skin temperature is often 5 to 10 degrees below normal. The dorsalis pedis and posterior tibial pulsations are diminished or absent and the oscillometric readings are low. There is usually no swelling unless infection is present or the patient sleeps with the lower leg hanging over the edge of the bed for comfort. Arterial ulcerations are usually located on the toes, heel or lateral surface of foot and ankle.

Seventy-five per cent of the patients with venous pathology have a familial history of varicose veins and often these patients will describe exacerbations with pregnancy or following a period of inactivity due to injury or illness. The typical findings of enlarged superficial veins, edema and cyanosis easily account for the tired, heavy feeling later in the day. Prolonged standing or sitting causes pain which is relieved by quick calf muscle contractions. Nocturnal leg cramps are a common complaint before surgical treatment. Stasis

pigmentation gradually increases as long as the swelling is unchecked. It very slowly fades if good circulation is re-established. Varicose ulcers are usually located on inner lower leg and can be temporarily improved by elastic support, frequent calf muscle contractions and rest periods. Definite treatment requires careful search for, and elimination of, any varicose veins running under or feeding into the ulcer.

#### Differentiation as to Source of Reverse Flow

Which system is involved—long saphenous or short saphenous, or both?<sup>22</sup> This is determined by percussion pulse transmission (P.P.T.) and the Trendelenburg test. These two tests form the basis for any good examination and give information obtainable in no other way. The P.P.T. helps us chart the course of the veins. The Trendelenburg test helps locate the origin and determines the amount of leakage. Not infrequently the reverse flow originates in the long saphenous but, because of communicating vessels, the short saphenous veins are enlarged, and vice versa.

Often one or more incompetent perforator veins allow reverse flow into and cause dilatation of, the long or short saphenous system. Good therapy requires ligation of the perforator vein and closure of the defect in the fascia. The perforator veins should be diligently searched for and their location carefully marked *before* surgery.<sup>11,12</sup> They can be felt as true openings, in the fascia. Finger tip pressure in these soft spots or holes is painful, as is the stretching of any opening in the deep fascia. Perforator veins are most commonly found on the internal surface, mid and lower thirds of lower leg. They may occasionally be located below the internal malleolus and feed upward into an ulcer, keeping it open. They may sometimes be felt in the base of a healed ulcer or dermatitis area and may be the cause of frequent recurrences. The Trendelenburg test helps to locate these perforators. If the veins below the tourniquet fill in ten seconds, you can be sure that one or more incompetent perforator veins are present.

#### Treatment of Varicose Veins

*Preoperative.*—General measures: Eliminate active infection including that due to fungus; encourage habit of frequent calf muscle contraction; reduce obesity; correct systemic conditions such as anemia, hypothyroidism, et cetera.

The very obese patient with varicose veins on the thighs and lower legs will usually have a poor end result. As a rule new varicose veins will form within a few months and they are hard to find and inject well in the obese leg. Such patients are also more liable to develop swelling and edema following radical dissection and stripping.

*Surgical.*—(1) Large varicose veins with definite reverse flow must be ligated *wherever* the reverse flow begins; the distal segment must be removed by stripping and dissection wherever possible.<sup>8</sup> Perforator veins must be carefully sought, dissected out and ligated.

Ligation at the source, plus retrograde injections of the distal segment, is satisfactory only for a superficial, tortuous vein of moderate size such as the lateral femoral cutaneous type, often found on the antero lateral thigh.<sup>5</sup>

(2) Small varicose veins with no reverse flow can be sclerosed by injection therapy.<sup>4,23</sup>

(3) Skin grafting: If the varicose veins have been present for years with the development of severe chronic cellulitis and recurrent ulcer formation, it may be best to do a radical excision of the area down to the deep fascia and the immediate application of a split skin graft. These patients must wear support for "many months" and often for the remainder of their lives.<sup>24,25</sup>

*Postoperative*—Careful and complete follow up injection therapy of every case should be done at the office one or two months after surgery and then yearly thereafter.

Post-phlebitic patients with deep vein incompetency may not be entirely relieved of their stasis by elimination of the superficial varicose veins.<sup>27,28</sup> For them the "new way of life" as advocated by Luke<sup>14</sup> is imperative. They must not permit the development of edema. Elastic support, rest periods with feet at least on a level with the heart (the sitting position does not correct the edema), frequent calf muscle contractions, et cetera, all help. If necessary a change of occupation is preferable to the damage caused by constant edema.

Most cases of stasis dermatitis improve with good circulation; stubborn, resistant cases often are benefitted by superficial x-ray therapy. They should be referred to a skin specialist. If the case presents the cold, clammy, wet leg showing

evidence of vaso spasm being present, then a lumbar sympathectomy will often give much help.<sup>21,22</sup>

Recurring cellulitis: For this condition we must control the edema, give irradiation therapy, control the fungus infections about the toes and feet, and give Gantrisin 2 gm. daily for one week in each month for four to six months.

Then finally the procedure needed to be done is:

(1) The injection method for the early formations and small veins with no reverse flow.<sup>4,23</sup>

(2) Ligation wherever the reverse flow begins followed with a complete stripping and dissection in all extensive cases.

(3) Ligation and then retrograde injection of the smaller tortuous varicose veins anterior and external thigh and lower leg.

(4) Ligation, plus stripping, plus blunt dissection, plus retrograde injection of extensive tortuous groups of smaller size 1 and 2 veins.<sup>29,30</sup>

(5) Ligation, plus stripping, plus blunt dissection, and even the Linton operation.<sup>15</sup> At times an excision of the old cellulitis and ulcer area in the lower leg with skin grafting.

(6) Then a careful and complete follow up injection of every case at the office and then yearly thereafter.

(7) When edema has developed with secondary complications of cellulitis and ulcerations, external support must be used to control the swelling. The patient must learn "a new way of life."<sup>26</sup> This is best done with a 4-inch elastic bandage worn very firmly applied from just below the knee down to and about the ankle and foot. The tighter the bandage and the faster the patient walks, the better will be the circulation in the lower leg.

In conclusion this plea is made: A careful history should be taken as to the onset and development of the individual patient's disease. This should be followed with careful and detailed inspection and palpation examinations, combined with the use of the percussion pulse test, (P.P.T.) and the Trendelenburg test.

The treatment of the patient then should consist of an adequate surgical procedure, individualized for the given case, together with adequate observation and care of the patient the rest of his life.



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IN THE NEONATAL PERIOD

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## The Position of Radiology in Cardiovascular Diagnosis

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WITH the passage of time there are fewer and fewer persons who can relate personal acquaintance and memories with individuals whose work has been memorialized by professorships, scholarships or lectureships. To those so fortunate as to cherish personal memories of Russell Daniel Carman, this occasion becomes considerably more than a simple medical discourse for the remarkable personality of a truly great man reaches across nearly thirty years to pervade their thoughts. A driving, dynamic and brilliant physician, utterly devoted to radiology, it was Carman's great capacity for friendship which all who enjoyed it will remember most fondly.

As the veriest of neophytes in radiology, your speaker came under the spell of that freely extended, sincere and stimulating friendship during visits to the section on radiology at the Mayo Clinic and at medical meetings. Although those contacts were brief, 1923 to 1925, the memory of them has been vivid and deeply inspiring over the years. Carman quickly assumed, and correctly, that instruction was called for and upon every contact poured out by impromptu lecture, precept and vigorous example the clear cut essentials of honest and effective gastrointestinal radiology. The lessons he taught have proved to be increasingly valid for they were fundamental. American radiology has yet to produce an abler performer in this particular field, or a finer, more lovable character. It is particularly fitting that the Minnesota State Medical Association has paid lasting tribute to a former member whose professional accomplishments were of world-wide scope and importance. Let those who did not know him in life accept with confidence the validity of perpetuating his memory by dignifying lectures with

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his name, for he was truly dedicated to the finest traditions of the profession of medicine.

The position of radiology in cardiovascular diagnosis has been so thoroughly altered since 1926 that virtually none of its present features would be familiar to Carman. In his time it was necessary for radiologists to content themselves with measuring the size of the heart, observing its position, its shape and the pulsations of its borders, and noting the appearance of the great vessels. Carman, who was so adept at the exploration of the alimentary canal with suspended barium sulphate, would be intrigued with today's methods of studying the lumen of the circulatory system, and the interest in surgical techniques and surgical pathology which lured him to the operating table in following interesting radiologic findings would find ample opportunity for expansion to the cardiovascular field.

The story of the phenomenal change which has occurred in the radiologic approach to cardiovascular problems in this country differs sharply from the early history of radiology in America. News of Roentgen's discovery of x-rays, announced in December, 1895, spread throughout the civilized world with electric rapidity and in the United States patients were being subjected to x-ray diagnosis within a few weeks. The *American X-Ray Journal* was established in 1897, and in 1900 the Roentgen Society of the United States was organized with sixty-four charter members.

In 1924 Brooks, a surgeon, described a method of injecting sodium iodide into the femoral artery in order to produce radiologic images of the arterial distribution to the lower extremity. Few radiologists followed this lead. From 1927 throughout the early thirties, Forsmann in Germany, Egas Moniz and dos Santos and associates in Portugal brought forth daring techniques for the radiologic study of opacified blood in the heart, the arteries of the brain and the abdominal aorta and its

branches, but although these methods enjoyed clinical recognition in Europe and the Latin American countries, radiologists of the United States seemed reluctant to employ them.

peripheral capillaries and the chambers of the heart, as well as the entire pulmonary circulation. Radiology has exploited a vast new jurisdiction to add voluminous and intimate knowledge concern-



Fig. 1. Complete occlusion of superior vena cava. Injection of opaque material by arm vein fails to result in filling of right atrium.



Fig. 2. Lateral projection shows extensive filling of tortuous, distended azygos system. Systemic blood from upper extremities must use this route to reach the right heart by way of the inferior vena cava.

It was not until Robb and Steinberg described their technique and their initial experiences in 1939 that angiography began to flourish in America. An editorial in the *Journal of the American Medical Association* of February 15, 1896, offered this admonition regarding x-ray diagnosis: "Its surgical utility in certain ways has probably been sufficiently indicated by what has been already done, but enthusiasm as to its future should be tempered by a scientific spirit of moderation that proves all things before building its faith upon them." It would seem that this advice, so blithely ignored in 1896, had finally been taken to heart after a lapse of thirty years, for certainly the new cardiovascular techniques were most carefully scrutinized before they finally won widespread approval. Since 1940 the story has been quite different, for in fifteen years cardiovascular radiology, rejuvenated by the acquisition of new techniques, has swept forward with accelerating momentum to brilliant clinical accomplishments.

It is now thoroughly feasible and often dramatically helpful to visualize the venous system from distal extremities to the right atrium, the arterial stream bed from the origin of the aorta to the

ing the morphologic and the physiologic expressions of circulatory disorders. Six basic procedures are used by radiologists in close co-operation with their colleagues in cardiology and surgery: venography, splenoportography, cerebral angiography, retrograde aortography, abdominal aortography and angiocardiology.

#### Venography

Venography is accomplished by injecting opaque iodine-containing solutions into peripheral veins distal to the point of suspected abnormality. By this means obliterative lesions of many sorts can be demonstrated graphically, as well as the efficacy or incompetency of venous valves in extremity vessels. The procedure which is simple and safe, is often of great utility in identifying the nature of obscure mediastinal lesions (Figs. 1 and 2).

#### Splenoportography

Splenoportography is employed for the study of the splenic vein and the portal system. Opaque material is introduced by direct percutaneous needle puncture into the splenic pulp, following which several exposures of the upper abdomen are

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made at intervals of about one second. Under normal conditions the splenic vein fills rapidly, discharging freely into the portal vein and its intrahepatic subdivisions. Within a few seconds

through the normal liver route, and varices of the stomach and esophagus are dramatically shown. When abnormal masses occupy the liver they can be recognized as defects in the hepatogram (Figs.

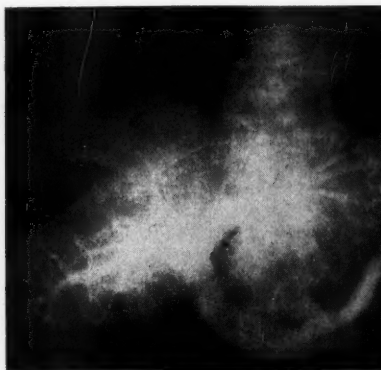


Fig. 3. Early phase of splenoportogram shows absence of portal venous elements in entire upper portion of right lobe of liver.



Fig. 4. Later phase, same patient. Lower portion of liver now opacified; upper portion not opacified. At autopsy very extensive replacement of liver by metastatic carcinoma from primary sigmoid lesion resected five years previously.

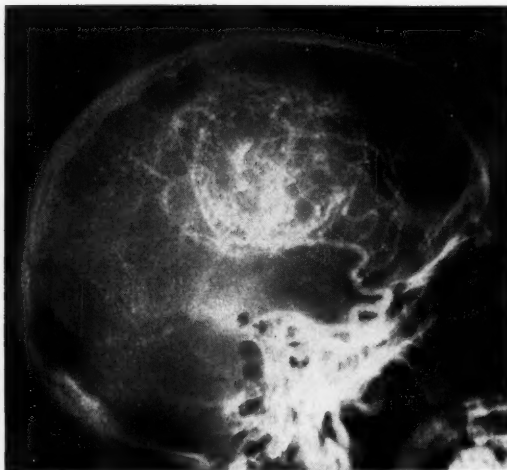


Fig. 5. Large parietal glioblastoma. Displacement of normal vessels. Extreme vascularity of the tumor itself is well shown.

the opaque blood fills liver capillaries to the extent that the entire organ becomes visibly opaque. The tributaries emptying into the splenic and portal veins do not fill. When portal hypertension exists, either intra- or extrahepatic in type, findings on x-ray are distinctive and of reliable diagnostic value. The tributary veins now serve as collateral escape routes for blood unable to pass

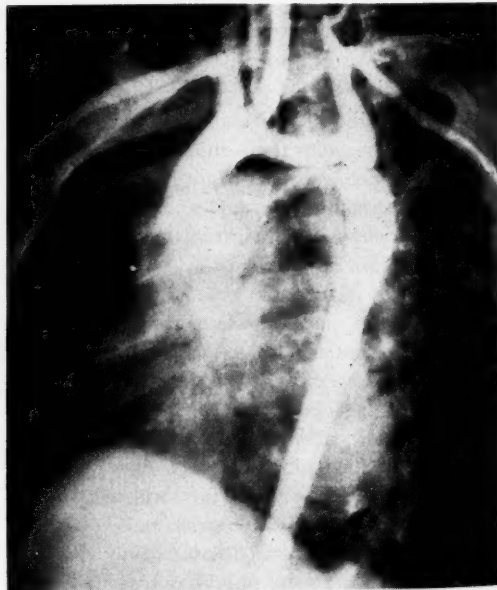


Fig. 6. Retrograde injection of subclavian artery outlining aortic arch and major branches. Mild degree of coarctation seen at origin of descending aorta and broad, patent ductus arteriosus.

3 and 4), and certain lesions of the pancreas can be apprehended by the visible alterations produced in the course and contour of the splenic vein.



### Cerebral Angiography

Cerebral angiography, the radiologic recording of intracranial vessels, is accomplished by perfusing the internal carotid or the vertebral artery

### Abdominal Aortography

Dos Santos in Portugal was the first to opacify the abdominal aorta by direct percutaneous puncture below the diaphragm and above the renal



Fig. 7. Selective filling of renal arterial system, right kidney. Needle inadvertently placed in renal artery instead of aorta.



Fig. 8. Abdominal aortogram with normal fill of vessels on right and extensive obliteration of upper pole vessels on left. Large renal carcinoma upper pole left found at operation.



Fig. 9. Abdominal aortogram. Abrupt narrowing of lumen proximal to bifurcation representing profound atheromatous disease which virtually obliterates lumen of iliac arteries leading to extensive development of collateral arterial channels.

with opaque material. Ominous as the procedure sounds when first contemplated, this procedure, introduced by Egas Moniz, is actually tolerated remarkably well, as well or better than ventriculography. It is profitable to make x-ray exposures during the venous as well as the arterial phases of cerebral circulation. Using this technique, lesions which involve vessels directly as well as those which distort and displace vessels can be detected and localized with remarkable ease and accuracy (Fig. 5). In the case of highly vascular tumors lingering opacity within the mass, known as "tumor stain," actually renders the tumor visible in its own right. To fully appreciate the status of cerebral circulation it is essential to prepare exposures in two planes, lateral and frontal.

### Retrograde Aortography

To enhance the density of the thoracic aorta and its branches, the forceful injection of opaque material by way of the carotid or subclavian artery against aortic pressure is useful and practicable. This procedure is helpful in the demonstration of coarctation of the aorta, aneurysms of aorta or major branches, anomalous vessels which may be producing undesirable symptoms (Fig. 6) and for better understanding of the nature of pulmonary or mediastinal masses lying close to the aortic arch.

This procedure produces a wealth of radiographic evidence concerning intra-abdominal lesions. It is possible not only to recognize intracapsular renal masses but to differentiate in many instances between benign and malignant tumors on the basis of vascular pattern (Figs. 7 and 8). In Sweden clever techniques involving the placement of catheters introduced through the femoral artery directly into individual renal arteries have been successfully employed together with stereoscopic filming. It is possible by aortography to visualize the major divisions of the aorta almost at will, and to provide detailed information concerning obliterative lesions of the arteries which supply the lower extremities (Fig. 9). Such information, supplied to the surgeon, often leads to spectacular alleviation of serious inadequacies of circulation for the removal of obstructing atheromatous masses or grafting operations can be planned and executed with great accuracy.

Again in Sweden, catheterization of the iliac artery by way of the femoral, using externally applied pressure to partially occlude the aorta and the femorals, is used to produce lingering opacification of the uterine artery on one or both sides. By this means Fernström is able to demonstrate placental sinuses in the early weeks of gestation. The method is particularly useful in establishing the diagnosis of tubal pregnancy and in localizing

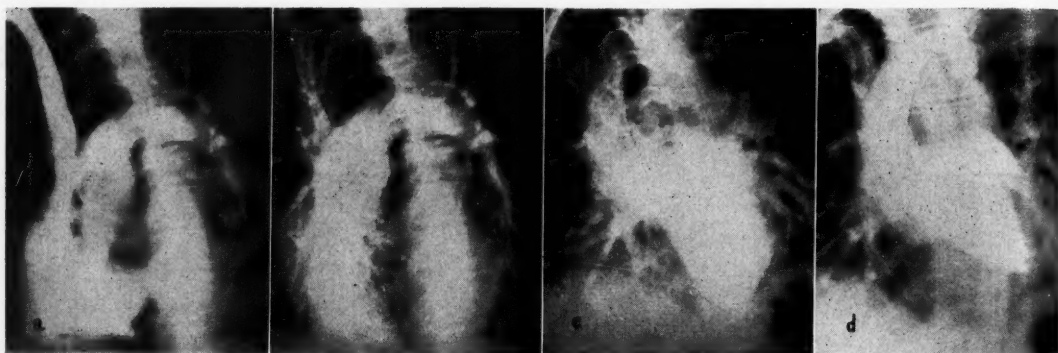


Fig. 10.—Venous angiocardigram.

(a) Fill of superior vena cava, right heart and pulmonary arteries. (b) One second later right ventricle in diastole shows location of interventricular septum with no filling on left.

(c) Four seconds later opacified blood returning by way of pulmonary veins outlines the left atrium and

ventricle. The aorta is beginning to fill. (d) The left ventricle is shown in systole one second later. The arch of the aorta with innominate, left common carotid but no left subclavian artery are clearly shown. Localized narrowing of the descending aorta (coarctation) can be recognized with post-stenotic dilatation.



Fig. 11. Venous angiocardigram showing several pulmonary arteriovenous aneurysms. The largest communication is to be seen below the diaphragm contour on the left. Although the exposure was made only a few seconds after injection the left auricle and ventricle are filling prematurely as the result of these pulmonary shunts.

the position of the placenta in normal intrauterine pregnancy.

#### Angiocardiography

The radiologic procedure most extensively used in cardiovascular diagnosis is angiocardiography. This can be done by the venous route or by selec-

tive injection through catheters. When injection is made through the antecubital vein, all chambers and vessels from the vena cava to and including the aorta are successively opacified. Exposures at short time intervals serve to record important events of the central circulation (Fig. 10). A wide variety of congenital malformations yield distinctive radiologic evidence of their presence and character. The method is of great value in determining which patients with congenital heart disease may hope to benefit by surgical treatment. Not infrequently the surgeon can determine in advance what difficulties he may expect to encounter. Tetralogy of Fallot, transposition of great vessels, septal defects, infundibular and valvular pulmonic stenosis and patent ductus arteriosus lend themselves well to this method of exact diagnosis.

When properly employed in conjunction with accurate cardiac catheterization utilizing pressure determinations, oxygen concentrations, simultaneous electrocardiography and electrokymography, angiocardiography reaches its peak of diagnostic accuracy. Specialized radiographic equipment is essential, preferably designed to produce extremely brief, closely spaced exposures in two planes simultaneously.

Angiocardiography is also useful over and beyond the study of central circulatory abnormalities. It is gratifying to be able to provide unmistakable

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# Chronic Pyuria

## Diagnostic and Therapeutic Measures

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THIS discussion is concerned, not with those mild acute infections of the urinary tract which disappear completely with sulfonamides and forced fluids, and never return, but rather with those which become chronic or recur repeatedly. Failure of simple therapy suggests that some factor is protecting the offending organism against the agents used, and demands a search for that factor before immunization against all the potent antibiotics has occurred. Only if this is done can crippling damage to the urinary tract be avoided in the majority of instances. The neglected patient may suffer from recurrent and disabling attacks of chills, fever, and vesical irritation, or may lose a kidney from pyonephrosis; hypertension may result from unilateral or bilateral cicatricial pyelonephritis; the latter may lead to death in uremia. Lithiasis may accompany a resistant infection with urea splitters, particularly if urinary stasis is present.

The steps in the necessary investigation are well known. In the female, the diagnosis of urinary infection cannot be made unless the urine is secured with a catheter; otherwise, a long and futile course of chemotherapy may be directed against a pyuria which is actually vaginal in origin. In the male, the starting point should be the two glass test. While this is indicative rather than conclusive, a cloudy first glass with the second one clear points directly to the urethra or prostate as the cause of the pyuria. The prostate should always be massaged and the freshly expressed fluid examined under a cover slip for pus. While it is not very often the source of a pronounced pyuria, the possibility should not be overlooked. If one finds areas of tender induration in the gland, the possibility of acute prostatitis must be considered; this is a fairly common cause of recurrent dysuria and increased frequency in the male. If the patient is examined between attacks, the gland may feel normal, so

that it may be necessary to have him return for a rectal examination during an acute attack in order to find the tender swelling which points to acute prostatitis as the cause of the symptoms.

The sediment of a centrifuged fresh specimen should be stained by Gram's method because the type of organism found (Gram negative rod or Gram positive coccus) is a rough guide to the selection of the proper antibiotic; and because complete absence of bacteria in the presence of pus suggests the possibility of amicrobic pyuria or of urinary tuberculosis. In this event, the urine should be cultured to make sure that the findings of the Gram stain are valid. One must remember that both the smear and the culture are unreliable if antibiotics have been given within the few days preceding the examination.

The next step is a plain roentgenogram of the urinary tract (KUB). One looks for stones, enlarged, shrunken, or absent renal shadows, for blurring of the margins of the psoas muscles (perinephritic abscess), and for lesions of bone.

The excretory urogram is invaluable as a rough screen for detecting abnormalities of the kidneys, ureters, and bladder. Properly made, it will yield a high proportion of definitive diagnoses in surgical diseases of the kidneys and ureters, but is of limited value in recognizing small lesions of the bladder because the relatively large amount of contrast medium which accumulates will mask them. The urogram is particularly useful in urinary infections for estimating the relative functional capacity of the two kidneys; for determining whether suspected calcifications are within the urinary tract; and for detecting stasis and anomalies, i.e., hydronephrosis, vesical diverticula, ureteral duplications, et cetera.

The retrograde cystogram and urethrogram (often combined with advantage) are helpful chiefly when findings up to this point are negative but leave one with the feeling that something has been missed. For example, a radiolucent vesical calculus may produce a filling defect in the cystogram, an unsuspected diverticulum may be seen,

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or a severe chronic prostatitis may appear as small irregular pockets protruding from the prostatic urethra.

No examination of the urinary tract is complete without a cystourethroscopic examination. Many blunders are due to failure to inspect the urethra, thus overlooking the typical fronds of a papillary urethritis in the female, and the dilated ducts with purulent secretion of a chronic prostatitis. Any proliferative lesion of the vesical or urethral mucosa must be subjected to biopsy, lest a small vesical neoplasm be overlooked or misinterpreted as inflammatory. Diverticula of the bladder too small to show in the cystogram (particularly one which is part of an excretory urogram) may be seen; specimens can be collected from each kidney to determine the source of a pyuria not otherwise localized; and retrograde pyelograms can be made when the urogram is unsatisfactory. One should not hesitate to repeat any part of the examination which leaves one with an unsatisfied feeling.

There are many factors which may prevent an infection of the urinary tract from responding to treatment. While these vary widely with age and sex, the principles involved in their recognition and treatment are the same. One should remember that stones and foreign bodies may fail to cause any pain whatever, and attract attention only because they incite and maintain infection. Even ureteral stones producing obstruction of considerable severity may be painless, and prostatic calculi rarely give rise to symptoms other than those of prostatitis. Large or branched renal stones are often painless. Vesical calculi and foreign bodies introduced during masturbation usually produce cystitis and pyuria without any symptoms suggestive of other lesions. For obvious reasons, children and adolescents who have inserted foreign materials into the bladder (chewing gum, paraffine, and candles are favorites) rarely admit it. These facts alone amply justify the employment of urography and cystoscopy in any stubborn infection. The latter is necessary because many calculi and most foreign bodies are radiolucent.

Congenital anomalies which lead to stasis of urine and so protect infecting organisms from therapeutic agents are numerous. Any hydronephrosis which develops gradually is likely to be painless except during bouts of acute infection; even then severe pain is rare. The commonest site of unilateral obstruction is the ureteropelvic junction due to congenital stricture, anomalous vessels, or

peripelvic fascia. In the urogram one sees hydronephrosis with a normal ureter. The horseshoe kidney, while uncommon, is often the site of obstruction of this type. Duplications of the renal pelvis and ureter are rather frequently associated with hydronephrosis, usually due to ureteral narrowing. While this may be found at the junction of the two ureters, it is usually located at the vesical end of one of them. This may result from stricture, from abnormal termination of the ureter in the urethra or introitus, or from a coincidental anomaly, ureterocele. Here the terminal ureter balloons into the bladder because of a stricture which involves only the mucosa of the ureteral orifice. This may obstruct one of a pair of normal ureters on the same side or involve a single ureter; it may overhang the vesical neck to such an extent as to cause obstruction there, so that the resulting dilatation of the upper urinary tract is bilateral.

Other congenital lesions causing urinary stasis include vesical diverticula and anomalies producing obstruction at the vesical neck. A vesical diverticulum may cause stasis by retaining urine within it, by narrowing an adjoining ureter, or by compressing the prostatic urethra. Other disorders responsible for obstruction at the outlet of the bladder include flaps of mucosa overhanging the internal urinary meatus, congenital valves of the prostatic urethra, hypertrophy of the verumontanum, hypertrophy of the internal sphincter, and congenital absence of the abdominal muscles. Incomplete emptying of the bladders of infants and young children may also be due to defects of innervation of the bladder and to urethral strictures and diverticula. Tragically enough, these lesions are rarely recognized until the upper tract has been damaged beyond repair, simply because their possibility is not usually considered. This situation would be much improved if physicians who take care of children would form the habit of watching those with pyuria micturate, and of checking the residual urine in every case of chronic pyuria. The poor stream is an obvious sign of obstruction or a weak detrusor. Only thus can these serious disorders be discovered in time to prevent hopeless deterioration of the kidneys.

Acquired diseases which cause stasis of urine are more frequent in older people. Commonest is prostatism, whether benign hypertrophy, carcinoma, or fibrosis. These foster infection only insofar as they prevent emptying of the bladder or lead to the formation of stones. The former situation is



recognized readily by measuring the residual urine, and the latter by roentgenograms of the bladder and by cystoscopic examination. Next in frequency are probably urethral strictures. It is unfortunate that the striking reduction in the frequency of post-gonorrheal strictures which has accompanied the use of penicillin should be to some extent neutralized by the increase of the traumatic variety due to accidents with the automobile and airplane, and in industry. While urethral stenosis predisposes to infection by producing residual urine, the increased pressure required to force urine through the narrow area may dilate the prostatic ducts; if infection is present, these dilated ducts may become small abscesses; such lesions strongly resist medical treatment. They are most easily identified by urethrography.

Diverticula of the urethra and of the prostate may be congenital or may result from epithelialization of abscess cavities. Their presence leads to stasis within their lumina, so that infection is fostered, and stones may form as water is absorbed, leaving urinary salts behind. Such diverticula are never discovered unless the physician remembers to look for them. They are best demonstrated with the urethrogram.

Localized proliferative or fibrotic inflammatory lesions are fairly common sources of persistent or recurrent infections. Most frequent are the papillary or polypoid masses which develop at the internal urinary meatus in the female. They probably result from a combination of circulatory disturbance incident both to relaxation of the pelvic floor and to postpartum scarring, with bacterial invasion. During an acute attack these proliferative structures swell, giving rise to a desire to micturate because of their presence within the first portion of the urethra. Since they cannot be expelled, the desire persists or soon recurs because of the feeling that there is something in the urethra. Acute attacks are associated with pyuria and bacteriuria, and are usually mistaken for "cystitis." The episodes subside with antibiotics, but the papillary structures remain as areas of lessened resistance, and almost invariably give rise to subsequent attacks. Some will disappear with weekly dilatations of the urethra to 30 or 35 French, followed by the topical application of  $\frac{1}{2}$  to 1 per cent silver nitrate; many will require electrocoagulation through the urethroscope.

Cicatricial urethritis (simple fibrosis of the urethra) may cause contracture with obstruction

to urination and, consequently, residual urine, and so lead to recurrent infection. For this reason, every woman with chronic or recurrent urinary infection should have the residual urine measured. Weekly dilatations of the urethra after the active infection has subsided will often so improve emptying of the bladder that the pyuria disappears. Failure of the dilatations to bring relief suggests obstruction at the vesical neck, diverticula (quite rare in the female) or neurogenic dysfunction.

Cystic lesions of the vesical mucosa (cystitis cystica) are usually the result rather than the cause of recurrent infections. Occasionally they may become so numerous and so large that it is desirable to destroy them by electrocoagulation.

Recurrent pyelonephritis may cause so much scarring as to impair local blood supply, and so leave the kidney vulnerable to future attacks. Such lesions cannot, of course, be cured. Occasionally they may cause hypertension, which may disappear after nephrectomy if the renal disease is unilateral. When it is bilateral, we must be content with treating the individual attack with antibiotics, not forgetting to explain to the patient the reasons for our inability to prevent recurrences.

One must always remember renal tuberculosis when dealing with unresponsive infections. While pyogenic organisms are not ordinarily found in the urine in tuberculosis (to the extent that a sterile urine culture in the presence of pyuria always brings up the question of tuberculosis), secondary infection may occur even with chills and fever, and so delay recognition of the underlying disease. This is one of the cogent reasons for making urographic and cystoscopic studies in every resistant infection. Careful search for the tubercle bacilli by means of the acid fast stain, guinea pig inoculation and culture will invariably reveal the organism if one persists long enough, but pyelograms should be made before delay has permitted the renal tuberculosis to progress or allowed secondary vesical tuberculosis to cause fibrosis of the bladder.

One cannot honestly say that an infection persists or recurs due solely to bacterial resistance to antibiotics and urinary antiseptics, until careful urography and cystoscopy have demonstrated the absence of the disorders already described, because almost any pyogenic organisms can acquire resistance when attempts are made to eradicate it with antibiotics without correction of the predisposing lesion. Therefore, one should not take the results

of sensitivity tests indicating resistance as final without careful and perhaps repeated review of the whole urinary tract. The strains of bacteria most often resistant to drugs are *Bacillus proteus*, *Aerobacter aerogenes*, and *Pseudomonas aeruginosa*, although almost any pathogen may become resistant in some circumstances. Sensitivity tests make a good starting point with antibiotic resistant bacteria. While scientific studies require the use of the serial tube dilution method, this is not necessary for ordinary clinical purposes. One can use Petri dishes containing blood agar, and divide the under surface into labelled quadrants with a wax pencil. Fresh urine collected with sterile precautions is smeared on the agar. "Difco discs," each saturated with an antibiotic to be studied, are dropped onto the agar, taking care that each one corresponds to a labelled segment. Organisms can be classified as resistant if, after twenty-four hours in the incubator, they have grown right up to the edge of the disc. They may be classified as slightly, moderately, or quite sensitive according to the width of any clear zones of inhibition around the discs. While correlation will be far from perfect, the results are useful clinically.

In general, *B. proteus* is unlikely to respond to any one antibiotic, but many strains will succumb to a combination of two, or to an antibiotic combined with an urinary antiseptic. Combinations likely to be effective include penicillin and streptomycin, Chloromycetin and Gantrisin, and Furadantin and Gantrisin. The first pair has, of course, to be injected intramuscularly. Relatively large doses should be used, say 500,000 units of penicillin and 0.25 gram of streptomycin every four hours. Because of the tendency of the latter to provoke both reactions and bacterial resistance (or even dependence), the course of treatment should be short. More convenient to use and just as likely to be effective are Chloromycetin 0.5 and Gantrisin 2 grams four times daily; at the end of a week the dose is reduced to one half; after another week it is cut to one quarter of the original level, being stopped at the end of the third week. However, if the urine is not grossly clear at the end of the first week, there is no point in continuing this regimen. The third alternative consists of Furadantin 7 milligrams per kilogram of body weight per day divided into four equal doses, and Gantrisin 2 grams four times daily. The former should never be taken on an empty stomach; nausea from the first few doses may disappear if administration

is continued. The same practice of halving the dose at the end of the first week; and of quartering it at the end of the second is followed; it is stopped at the end of the first week if the urine has not cleared. The object of the continuing the regimen for three weeks is to kill all of the organisms if possible, since there seems but little doubt that many recurrences are due to stopping treatment as soon as the urine clears; the ability of the organism to grow may be only temporarily impaired at this point.

*Pseudomonas aeruginosa* is usually insensitive to all of the antibiotics ordinarily used, although a few strains may succumb to one of the tetracyclines or to calcium mandelate in adequate doses (3 grams four times daily with the fluid intake limited to 1200 cubic centimeters). While infections with these organisms are rarely serious, an occasional strain may behave in a highly virulent fashion. Here one uses Aerosporin (polymyxin B). Because of its neuro- and nephrotoxic properties, and because it has to be given parenterally, the patient should be hospitalized. The drug is mixed with 1 per cent procaine and injected intramuscularly. Even then, it may cause pain at the site of injection. The largest safe dose is probably 2.5 milligrams per kilogram per day in four equally divided amounts. If treatment is continued for more than a few days, the renal function should be checked every forty-eight to seventy-two hours while keeping alert for signs of damage to the central nervous system.

*Aerobacter aerogenes* is a close relative of *E. coli*, but is far more resistant to antibiotics than the latter. Agents most likely to be effective are the tetracyclines, chloromycetin, and sulfonamides, in that order. Streptomycin may be successful; obviously the sensitivity tests are useful here, as well as in resistant strains of other species.

Staphylococci which are resistant to penicillin may succumb to erythromycin, 400 milligrams four times daily. Formerly, the intravenous injection of neoarsphenamine or mapharsen in small, frequent doses could be counted upon to cure a few stubborn chronic infections, but the success of penicillin in the treatment of syphilis has resulted in the virtual disappearance of the arsenicals from the market. This is particularly regrettable in the admittedly rare amicrobic pyuria, which was wont to vanish like magic following the use of these agents.

(Continued on Page 306)

## Roentgenographic Findings in Respiratory Problems of Infants

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THE acute respiratory problem of the neonatal period is one which often requires rapid diagnosis to insure proper therapy. The gradually developing lesions can be handled more leisurely; nevertheless, both the acute and chronic lesions have roentgen findings which will frequently aid the clinician in diagnosing the case. The clinical

free pleural space, mediastinum, and subcutaneous tissues<sup>1</sup> are the two routes for the passage of air (Fig. 1).

Aeration and expansion of the lungs are gradual processes especially in premature infants. When the process of inflation fails to occur, which is thought to be on an obstructive basis by some,<sup>2</sup>

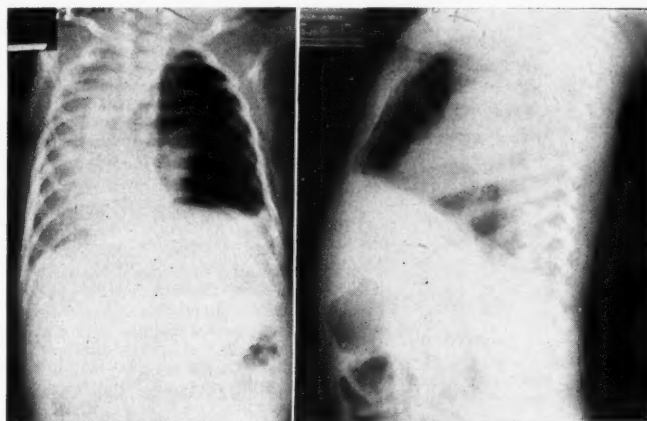


Fig. 1. (Case 1) A five-day-old white male child who had acute respiratory distress from birth. Diagnosis: crush type hydropneumothorax with shift of the heart and mediastinum.

and roentgen findings together will be of more value than either one alone. These entities will be discussed in the order in which they might be encountered during neonatal and early childhood periods.

Birth trauma frequently results in an asymptomatic pneumothorax, especially in the premature infant. Only those cases which have marked collapse of the lung with resultant respiratory distress are examined radiographically. Fractured ribs are rarely found. The development of the pneumothorax is usually due to a crush injury which is the same in infants and adults. Simple alveolar rupture into the pleural space or retrograde passage along the perivascular tree to the hilar root,

various degrees of distress, cyanosis, and even death will follow.

Farber and Wilson<sup>3,4</sup> have shown that there is physiologic atelectasis of varying magnitude during the first four days of life in full-term infants who have no respiratory distress. In contrast, the premature infants' lungs may not fully expand for from four to six weeks. They feel that cohesive forces, faulty or ineffective function of the respiratory centers and an underdeveloped thoracic cage are more important in the failure of expansion in primary atelectasis than is true obstruction, which has been postulated as the cause of fetal atelectasis.

A problem which is particularly interesting to us at the University of Minnesota Hospitals is that of hyaline membrane disease. It is not found in stillborns or within the first hour of life.

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Lungs are the poorest developed organ at birth and have to take on an entirely new function at birth.<sup>5</sup> At the four- to five-month stage of gestation, gas exchange would be impossible. The respiratory tree is lined by cuboidal cells which sepa-

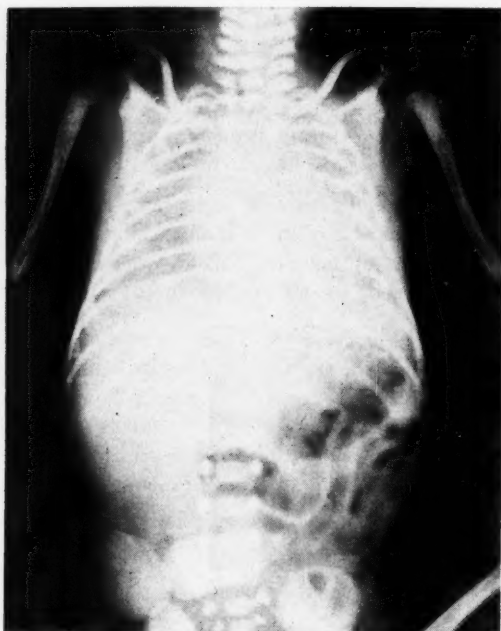


Fig. 2. (Case 2) A premature with respiratory distress at eight hours at which time retraction developed. Radiographs and thoracotomy showed atelectatic changes compatible with the diagnosis of hyaline membrane disease. Autopsy showed secondary atelectasis with hyaline membrane lining of many alveoli.

rate the blood vessels from the potential air space. If the infant were born at this stage, the cuboidal cells would prevent passage of air. At the fifth month, capillary buds begin to push the epithelium aside and are exposed to potential air spaces. By the seventh month, sufficient capillaries are exposed to sustain life. Anything which interferes with this process is a hazard to life, which accounts for more difficulty in prematures.

In hyaline membrane disease, the infant will usually breathe spontaneously. Later, the respirations become labored and are accompanied by retraction of the thoracic wall. Occasionally there is recovery, more often death occurs in forty-eight hours. Grossly the lungs are dark red and firm and sink in water. Capillary engorgement is a microscopic finding. The major alveoli and respiratory ducts are collapsed. The few remaining air spaces are lined with a hyaline membrane.

The exact etiology is unknown. Aspiration of amniotic fluid has been considered as the cause for many years.<sup>6,7</sup> This view has been challenged,<sup>8-11</sup> and the role of capillary exudation and other biochemical factors must be considered.

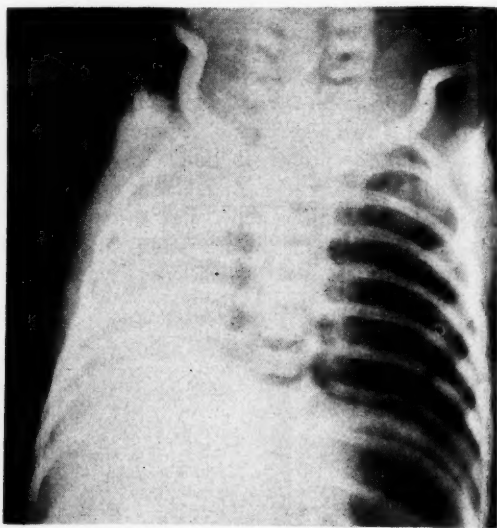


Fig. 3. (Case 3) A one-day-old female child who had a tracheoesophageal fistula. There was also respiratory distress thought to be due to aspiration pneumonia and/or atelectasis. Chest study showed shift of the heart and mediastinum to the right with compensatory emphysema on the left. A differentiation between agenesis and atelectasis had to be made. Autopsy findings showed the fistula, agenesis of the lung, and aspiration pneumonia.

The roentgen findings have been described<sup>12-14</sup> as ranging from generalized granularity or nodularity, to complete atelectasis with or without peripheral emphysema (Fig. 2). At present, we are attempting a study to follow the roentgen evolution of the disease more closely.

Not all respiratory problems of infants are due to bizarre causes. Most cases involve simple postpartum pneumonia<sup>15</sup> or aspiration. One must also consider the possibility of an underlying anomaly such as a tracheo-esophageal fistula with secondary aspiration, atelectasis, or both. Likewise, pulmonary anomalies, such as agenesis of the lungs, may be misinterpreted as an acquired disease (Fig. 3). Bronchography and planigraphy are necessary to confirm the diagnosis.<sup>16</sup> Infantile myasthenia gravis may show swallowing problems with secondary aspiration and pneumonia. We must also acknowledge the congenital diaphragmatic hernia as an occasional cause of neonatal respiratory distress as



a result of compression of lung parenchyma by the intrathoracic location of abdominal viscera.

As described by Henry<sup>17</sup> and Van Epps,<sup>18</sup> hypertrophic lobar emphysema is an acute respiratory problem found primarily in the new born. Dyspnea

The decision to excise the lobe depends on the degree of hypoxia and respiratory embarrassment.

Cystic disease, either congenital or acquired, must be differentiated from lobar emphysema. In the obstructive cyst, tension pneumothorax must

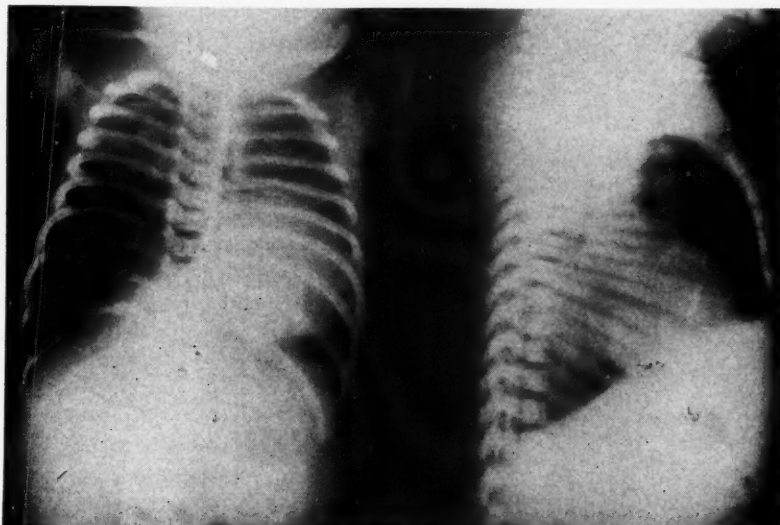


Fig. 4. (Case 4) A seven-day-old female child who had marked respiratory distress and cyanosis from the third day. X-ray showed mid lung field emphysema and compression atelectasis of the right upper and lower lobes. Impression: hypertrophic lobar emphysema. (Surgery—lobectomy confirmed the diagnosis.)

Figure 4 is presented through the courtesy of Drs. Roger Lienke and E. F. Van Epps, University of Iowa, and by permission of the publishers of *The American Journal of Roentgenology, Radium Therapy, and Nuclear Medicine*.

and cyanosis often develop within a few days of birth. No infectious disease is present (Fig. 4). Various causes for the finding have been listed, such as, redundant bronchial mucosa acting as a check valve, abnormal cartilaginous ring development, aberrant vessel compression, and a stenosed bronchus. Some cases have no discernible bronchial lesions. The lungs are overdistended and apparently quite pink. They remain distended after removal, suggestive of an elastic tissue abnormality.

The course is one of a normal infant who becomes dyspneic with or without cyanosis shortly after birth. On examination they have classical emphysematous findings with no evidence for inflammation. The signs and symptoms are more alarming than in cases of true cysts. Radiologic findings are those of localized lobar distribution of emphysema, manifested by a large translucent zone confined to a lobe with adjacent compression, mediastinal shift, and compensatory herniation. The septa of cystic disease are absent. Johns<sup>19</sup> expressed the opinion that all non treated cases died. Caffey<sup>20,21</sup> described spontaneous regressions.

be excluded.<sup>16</sup> Whether closed or open, these conditions are not recognized early unless they become infected or compress much lung parenchyma. The closed cysts may be fluid filled and as a result are not radiographically translucent. The air filled pneumatocele, by contrast, will cause various degrees of translucent replacement and displacement of lung parenchyma, sometimes simulating a tension pneumothorax with shift of the heart and mediastinum to the opposite side (Fig. 5). There may be associated circulatory compression.<sup>22</sup> Septa are a diagnostic feature in this entity. Post inflammatory pseudocysts can produce similar clinical findings, but they do not involve alveoli or bronchi<sup>23</sup> (Fig. 6).

The histological differentiation between congenital and acquired cysts is difficult. Condon<sup>24</sup> has shown that respiratory epithelium responds rapidly to injury and that epithelial linings *per se* are no index to the congenital nature of the cyst.

Methemoglobinemia<sup>25</sup> due to ingestion or absorption of various chemicals such as nitrites, ace-

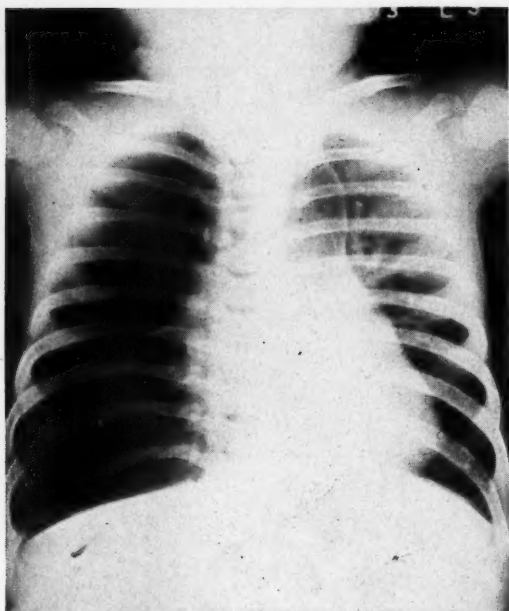


Fig. 5. (Case 5) A two and a half year old boy who tired easily but a lesion was not discovered until nine months of age when an x-ray was taken. There was marked lung field translucency with compression of the heart and mediastinum to the left. Septa were present. Diagnosis: cyst. Surgical and pathologic diagnosis: congenital cysts.

tanilid, potassium chlorate, nitrobenzol, etc., results in the formation of an oxyhemoglobin to which the oxygen is firmly bound and which does not function in respiratory exchange. As a result, cyanosis is the presenting finding with dyspnea. Congenital heart disease is often suspected. We recently had a patient who was clinically suspected to be an example of tetralogy of Fallot. Radiographically there was questionable increase in lung field translucency. The cyanosis cleared after one day of hospitalization in the Heart Hospital, and it was found to be due to a high concentration of nitrites in well water. The outcome of this case was fortunate, but the disease can be fatal if not recognized. Actually there are no diagnostic roentgen findings.

Arteriovenous aneurysms<sup>26</sup> are another cause for cyanosis in the infant even though the lesions are usually discovered later in life (Fig. 7). If the shunt is large enough, cyanosis can be recognized early. The usual later findings are clubbing of the fingers, exertional dyspnea, cardiac strain, and secondary polycythemia. A bruit is sometimes heard over the area. Due to shunting of the blood through the malformation, there is often a decreased parenchymal vascular pattern. In the area of the lesion, a serpiginous shadow radiating from the hilum is the expected finding. Often, these are



Fig. 6. (Case 6) A one-month-old boy who developed aspiration pneumonia after a herniorrhaphy on the first day of life. This was followed by effusion and post aspiration empyema. The empyema loculated anteriorly and was followed by anterior cystic lesions of the interstitial, extra-alveolar pseudocyst variety.

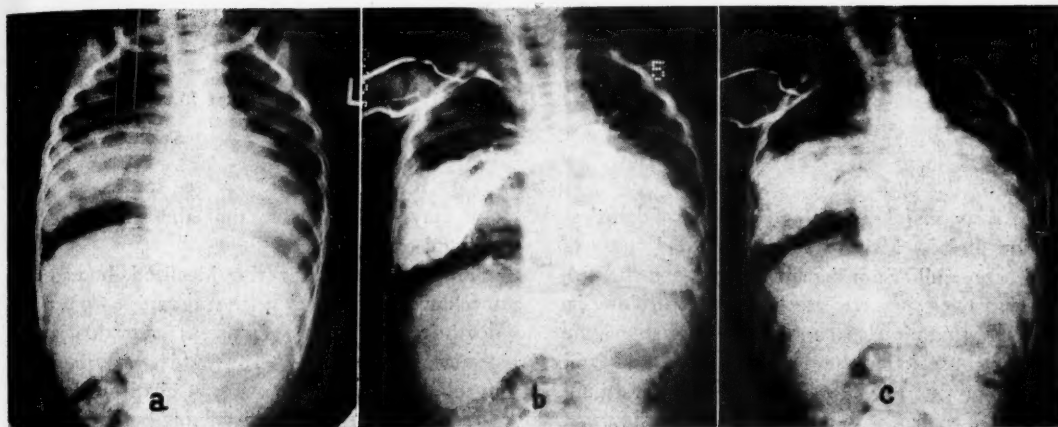


Fig. 7. (Case 7) (a) Male child born in a tuberculosis sanitarium was not seen by mother until two months, and she wasn't aware of cyanosis until nine months. The right middle lobar patchy density had a central cluster of sharply circumscribed densities suspected of being an arteriovenous aneurysm. No bruit was heard. (b and c) Angiogram confirmed the diagnosis. Surgery confirmed the finding but the child died of cardiac decompensation and edema.

multiple with smaller defects that do not become apparent until the obvious lesion has been removed.

### Summary

Many pulmonary problems which present with respiratory distress and cyanosis in the neonatal period and infancy have been discussed and their roentgen manifestations demonstrated. The combination of clinical, radiologic, and laboratory studies will often lead to the correct diagnosis and treatment.

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# Electrolyte Disturbances in Dehydration

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THE successful and definitive repair of dehydration and its accompanying abnormal states of acid-base equilibrium depends more upon the kidney and the cybernetic mechanisms controlling its function than it does upon the acumen of the clinician in selecting the type and quantity of fluid to be administered. The history of parenteral fluid therapy is replete with eponymic solutions of great diversity and complexity, all of which have been used with surprising success to restore the volume and composition of the body fluids. As the sophistication of technique progressed, the view of the underlying mechanisms upon which rational and intelligent therapy could be carried out was lost. Talbot, Crawford and Butler<sup>1</sup> have rendered the good service of reminding us of the items just noted and have pointed out the corollary that, if the body is offered quantities of water and ions within the ability of the kidney to conserve or reject these substances, a proper sorting out will occur and normality will be quickly restored. One major difficulty seems to fall in the way of giving the kidney all of the responsibility for therapy. At times it may not be working properly, either for reasons of its own or because its communication system has gone awry. In about eighty out of a 100 instances, routinized therapy for dehydration and its associated ionic disturbances will work admirably and produce the desired results. In a few of the remaining twenty instances, no therapy will be successful as the physiologic pathology will have gone so far as to be irreversible. In other instances the deficits are bizarre or the homeostatic links required for adequate renal control are broken. Therapy in this same group, if it is to be successful, must be based on understanding of mechanisms. The use of formulas and tables will fail. Clinical observation and reflection will often serve to identify the patient in whom normal homeostatic mechanisms will fail to aid therapy. At times failure to respond to standardized forms of ther-

apy may give the clue that the situation is an unusual one.

Figure 1 indicates the idealized homeostatic mechanisms by which the organism postpones death from circulatory failure as water deprivation occurs and progresses. It should always be borne in mind that the basic cause of death in dehydration is reduction of blood volume below a critical point where circulation fails. While the diagram is constructed to indicate the events occurring in pure water deficit (man in the desert), it forms the basis for critical thinking about what happens to the patient who, in addition to being unable to take or retain water by natural means, suffers from deficit of renal, adrenal or pituitary function or from wasting of body electrolyte.

The diagram is best understood by following down the two sides simultaneously until the final credit for the whole transaction has run out, and the debit is ready for therapy. Once water intake stops, from whatever abnormal cause, deficit immediately results because of the continuous obligatory loss of water from the skin, lungs and kidney. The process is analogous to the boiling away of water from a pot on the stove. Loss of water can only be stopped by putting out the fire. As water thus leaves the body, the volume of extracellular fluid (ECF) is first to decrease. Simultaneously, as indicated on the right side of the diagram, the factors of infection, trauma, pain and fasting lead to increased ACTH production by the pituitary. The increased ACTH results in production of the catabolic adrenal hormone hydrocortisone. Decreased ECF (or blood volume) appears to directly stimulate the production of the sodium retaining adrenal hormone aldosterone. This sequence is indicated by the arrow across the top of the diagram. The question mark breaking the arrow indicates lack of complete experimental proof of the sequence. Decreased body sodium or increased body potassium may also be factors. Returning to the left side, we see that, as volume falls, the osmotically active solute, mainly sodium and chloride, of the ECF tend to rise. This increase in concentration is accentuated

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by the renal retention of sodium secondary to the effect of aldosterone on the renal tubule. The rise in concentration of sodium in the plasma leads to secretion of antidiuretic hormone (ADH) by the posterior pituitary as has been so beautifully shown by Verney.<sup>2</sup> In turn, ADH leads to maximal water reabsorption by the kidney as indicated by maximum specific gravity of the urine. A second consequence of the increased sodium concentration is the transfer of intracellular water to the ECF in response to the now imbalanced osmotic pressure. Transfer of water is further aided by the catabolic effects of hydrocortisone secreted in response to the stressful stimuli. Under such hormonal actions the individual, in effect, "self-feeds" himself from his own body substance. Potassium and nitrogen are lost from the cell and water and calories become available. Aldosterone again steps into the homeostatic chain by facilitating the renal excretion of potassium and preventing a lethal rise of this ion in ECF.

The events just described allow the ever-increasing deficit of ECF to be shared by the relatively much greater volume of intracellular water. Furthermore, as long as homeostasis succeeds, little change in electrolyte concentrations will occur. Sodium, potassium and nitrogen (urea) concentrations will be normal. As Gamble<sup>3</sup> has pointed out, these mechanisms greatly multiply survival time under water deprivation. Without these mechanisms for spreading water deficit over all the body water, the circulating fluid volume would be quickly wiped out.

Changes in the plasma concentration of sodium, potassium and urea should indicate to the clinician that the ultimate strain has been placed on the mechanism or that somewhere the process is not working properly. If the adjustments have been perfect, the only abnormality will be reduction in volume of the body fluids and net loss of extra- and intracellular electrolyte. In very general terms we know that when 10% of the body weight has been lost as water, the final strain becomes evident in the form of peripheral circulatory failure and beginning distortion of the ECF ionic pattern.

Modern concepts of fluid therapy are designed to reverse and take advantage of the sequences just described. The initial attack is made upon restoration of circulating volume by means of various facsimiles of ECF varying in sophistication from "normal" saline to lactated Ringers solu-

tion. Simultaneously, or very closely thereafter, provision must be made for the obligatory expenditure of water from skin and lungs and for water to relieve the kidney of the burden imposed upon it by ADH and the need for excretion of products of cell breakdown. This combined operation is accomplished by the administration of solutions containing one-third to one-half the concentration of electrolyte contained in so-called "normal" saline. Reflection about the sequences shown in Figure 1 will indicate that the practice of infusing saline solution or saline in glucose alone in dehydration does little but accentuate the disturbance. The ill effects of fluid volume deficit may be temporarily overcome but any gain is quickly offset by the subsequent accentuation of abnormal plasma electrolyte pattern. Success in treating dehydration with isotonic saline in the past indicated that the extraordinary fortitude of the kidney coupled with the fact that restoration of circulating volume revived the patient sufficiently so that he could drink naturally occurring hypotonic fluids. With present-day knowledge it is better not to gamble on these possibilities.

Once the threat or actuality of circulatory failure has been removed and the kidney "primed," the beginning of repair of the intracellular fluid may be carried out by provision of potassium in the administered fluids. If potassium is not provided, sodium ion will take its place in intracellular fluid. This latter occurrence, if of the usual limited degree, seems of no clinical significance but if extensive, produces clinical symptoms.<sup>4,5</sup> Provision of potassium in parenteral fluids is generally only necessary when a prolonged period (two days or longer) of parenteral fluid therapy becomes necessary.

In a certain small number of patients the homeostatic mechanisms will have failed and cannot be depended upon to aid in therapy. Clinical observation and intelligent use of the laboratory will serve to identify these patients and to guide therapy. It is obvious that any break in the mechanisms shown in Figure 1 will prejudice operation of the whole system. The clinically most common examples are abnormal extrarenal loss of sodium salts or failure of the kidney to conserve them. Loss of sodium through diarrhea, vomiting suction drainage, sweating, diuresis or failure of the renal sodium conserving mechanisms allows ECF sodium concentration to fall as water deficit increases. As a consequence, ADH secretion fails to

occur as does osmotic transfer of water from intracellular fluid. The brunt of dehydration falls on the ECF alone, and the critical point in reduction of circulating volume is reached in hours rather

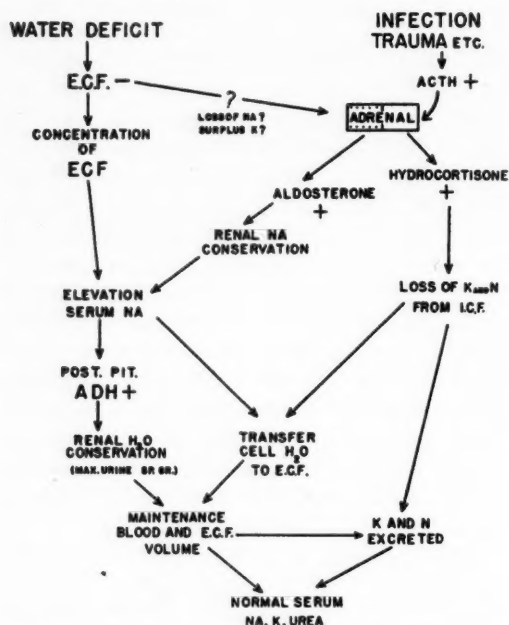


Fig. 1. Schematic presentation of the homeostatic mechanisms acting during water deficit. + or — signs indicate that a function is increased or decreased. E.C.F., extracellular fluid; ADH, antidiuretic hormone; I.C.F., intracellular fluid. For explanation see text.

than days. The patient with adrenal insufficiency is the rare but pure prototype of such a failure of homeostasis. So-called "base-losing nephritis" and instances of suction drainage without adequate electrolyte replacement are more common examples. Patients with salt depletion in excess of water can often be clinically identified. Signs of peripheral circulatory failure are profound, blood pressure is low and pulse rate high, skin turgor is decreased to an exaggerated degree, and the traditional Hippocratic facies are present. Physical examination shows a generalized muscular hypotonia. Unless the condition is far advanced, the sensorium is clear and the psyche seems dominated by alternate lassitude and anxiety. The plasma sodium concentration is low and potassium and urea high. The routine administration of hypotonic potassium-containing solutions to such patients accentuates the clinical and chemical disturbances and results in deterioration of the situation. Such

patients are, in effect, suffering from water intoxication. Their initial therapy must be with isotonic solutions of electrolyte, not hypotonic. In the severely ill patient with dehydration treated pragmatically with hypotonic solutions, careful watch should be kept in the six to eight hours following initiation of intravenous fluid therapy. If the typical favorable response does not follow in this period, the suspicion of hypotonic dehydration should be raised, and therapy should be changed to that with isotonic solutions of electrolyte. Correlation of the clinical state with measurement of the serum sodium or chloride concentration is invaluable at this point.

In a goodly number of instances of dehydration, particularly in infancy, the homeostatic mechanisms seem to have over-reacted to the stimulus of dehydration. Sodium retention by the kidney has been intense, and the expenditure of water without salt from the skin, lungs and intestinal tract unduly high. The situation is crudely analogous to that of a beaker of saline solution boiled to near dryness over a flame. The concentrations of sodium and chloride in the plasma are far above normal. The dehydration may be termed "hypertonic." Again, good clinical observation will identify many of these infants. Their appearance is nearly the opposite of those with low sodium concentrations. Signs of circulatory failure are minimal; skin turgor is deceptively normal, and the eyeballs are not sunken. Unlike the patient with salt depletion and dehydration, they are out of contact with the environment. Their extremities and back are stiff or even rigid, and the examiner gains the impression that they are close to the convulsive point. Often this is true. In infants the initial mistaken diagnosis of meningitis is often made, and the water deficit ignored. If sought, laboratory signs of central nervous system damage are usually found. Spinal fluid proteins are nearly always increased and the EEG abnormal. Figure 2 shows the initial EEG tracing in an infant whose serum sodium concentration reached the rather astounding value of 200 mEq./l. as a result of dehydration secondary to gastroenteritis. Eight days later, after appropriate therapy, the tracing is normal. Usually the lesions seem functional and reversible, although in a few instances the presumed chemical trauma seems to be permanent. Abnormally high concentrations of serum sodium are frequently encountered in patients with prior central nervous system disease.<sup>6</sup> Time does not

allow complete discussion of the pathologic physiology of this type of dehydration. This can be found elsewhere.<sup>7,8,9</sup> Suffice it to say that the brunt of the water deficit has been borne by the intracellular rather than the extracellular fluid. Extracellular volume seems to be relatively intact. Loss of potassium does not seem to occur. Ionic concentrations within cells, like extracellular concentrations, are high.

The question may be asked as to the relative frequency of abnormal states of ionic concentration in dehydration. In a two-year period at Babies and Children's Hospital of Cleveland, 220 out of 2600 admissions were instigated with dehydration as an urgent diagnosis. In seventy-seven instances measurements were made of the serum sodium concentration before therapy was initiated. Seventy per cent of the seventy-seven were in the normal range (130 to 150 mEq./l.); 20 per cent of the concentrations were over 150 mEq./l., and 10 per cent under 130 mEq./l. Presumably the majority group had come along the path of dehydration with normal homeostatic mechanisms in operation. In the majority group a single parenteral solution with an electrolyte concentration of 50 to 70 mEq./l. would serve for ideal repair. In the remaining patients individualized therapy based on clinical observation supported, if possible, by laboratory measurements would be essential for effective therapy.

Before concluding, note should be taken of the acid-base disturbances that inevitably accompany dehydration. They are the result of differential losses of cation (base) and anion (acid) in intestinal fluids and urine coupled with the increased requirement for anion excretion occasioned by the destruction of tissue outlined above. Correction of these disturbances depends upon restoration of circulatory efficiency and the consequent return of renal function. Correction of the acidosis by infusion of alkaline solutions should be a strictly secondary consideration in planning therapy. The history of parenteral fluid therapy supports this contention. The earliest attempts at the beginning of this century to understand and study the pathologic physiology of diarrheal disease centered about the finding of acidosis in the blood of these patients. At that time little understanding existed concerning the volume and composition of the body fluid compartments and their critical relationship to circulatory and renal function. Therapeutic efforts centered around the administration

of strongly alkaline solutions in small volume. Such procedures increased mortality and were soon abandoned. Some years later Hartman pointed out the therapeutic efficacy of combined proce-

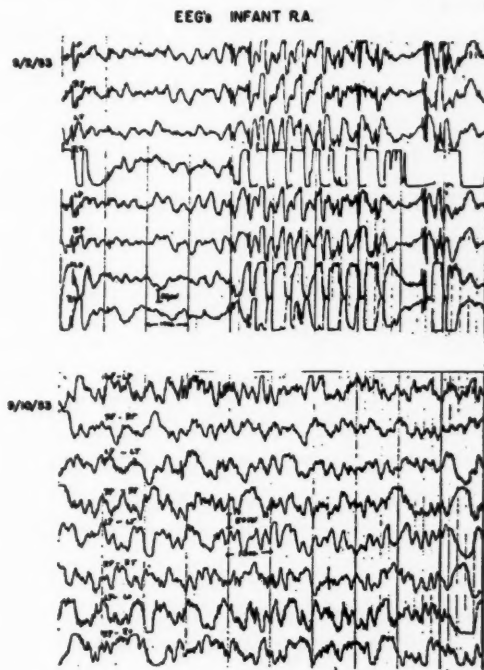


Fig. 2. Electroencephalogram of a 6 months' old child with severe hypertonic dehydration. The tracing at the top was made when the serum sodium concentration was 200 mEq./l. The lower tracing, 8 days later, was made at recovery.

dures to restore both the volume and the ionic composition of the body fluids.

### Summary

The homeostatic mechanisms utilized by the body to defend itself against dehydration have been described. The central role of these mechanisms is to sustain for the longest possible period of time the circulating volume and composition of the body fluids. In disease these adaptive mechanisms may fail. The clinical signs indicating such failure and their correlation and corroboration with and by laboratory measurements are discussed. Therapy of dehydration is discussed in light of these concepts.

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(Continued on Page 313)

# Seminar

## THE PYRROL PIGMENTS AND HEMOGLOBIN CATABOLISM

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Minneapolis, Minnesota

THERE is a singular merit in the establishment of an E. T. Bell lectureship by the Minnesota Pathological Society. Dr. Bell has nurtured this society from its neonatal period. His guiding hand and penetrating wisdom, mellowed with his delightful sense of humor, have been mainstays of the society these many years. As one of his former and, may I say, continuing students for many years, it is a special privilege for me to give this first E. T. Bell Lecture:

I thought it might be appropriate to discuss a topic in which I became interested nearly thirty years ago, while a member of Dr. Bell's department. The general character of the advances in that interval of time depends, of course, upon many factors, among which may be mentioned a greatly augmented knowledge of porphyrin and bile pigment chemistry gained in part by older, classical methods. The more recent advances in this area rest on many new techniques, especially the application of the chromatographic method and the utilization of isotopic tagging. Some of the most significant advances were enabled by the discovery of Shemin and co-workers<sup>1,2,3</sup> that glycine and acetate are the essential building blocks of the porphyrin and bile pigment molecules. This, together with Westall's isolation of the monopyrrolic precursor, Waldenström's porphobilinogen,<sup>4</sup> and subsequent studies of intermediary substances, has provided clear insight as to the anabolic aspects of hemoglobin (heme) metabolism. While this is not the topic that I shall

devote the most time to, it is desirable to comment briefly on the main facts that have now emerged, in order that anabolic and catabolic pathways may be in some measure compared.

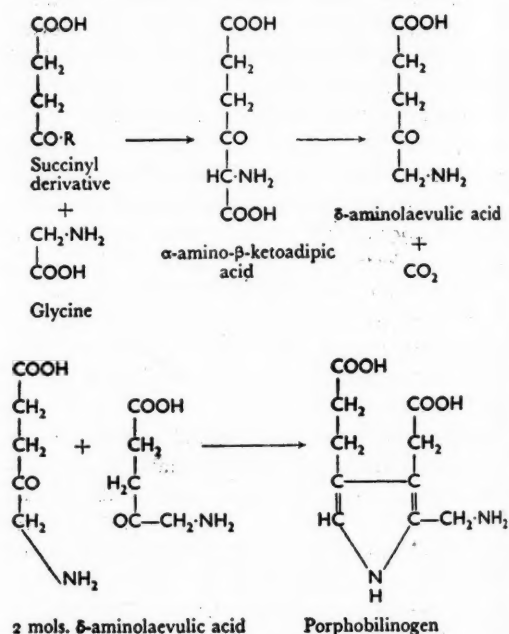


Fig. 1. Stages in the biosynthetic pathway to porphobilinogen. Four molecules of porphobilinogen are then employed in the formation of uroporphyrin, the  $\alpha$ -NH<sub>2</sub> group at the right being split off. (From C. Rimington, "Porphyrins" in *Endeavour*, page 135, July, 1955. Reproduced by permission of the publishers.)

Of considerable interest is the recent emergence of porphobilinogen as the first pyrrole to be formed along the anabolic pathway to heme. Hitherto this was known only as the Ehrlich reacting compound characterizing the urine in acute porphyria. The isolation of porphobilinogen from such cases is an excellent example of the fashion in which a relatively rare disease may provide the key to a phenomenon of much more general significance.

The first E. T. Bell Lecture of the Minnesota Pathological Society.

From the Department of Medicine, University of Minnesota Medical School and Hospital, Minneapolis. The studies in this laboratory have been supported in part under contracts with the Surgeon General's Office, U.S.A., and the Atomic Energy Commission. Presented in part at the meeting of the Minnesota Pathological Society, October 18, 1955.

This lecture will appear in three installments, of which this is the first.



# PYRROL PIGMENTS AND HEMOGLOBIN CATABOLISM—WATSON

The structure of porphobilinogen was established by Cookson and Rimington.<sup>5</sup> The studies of Shemin and co-workers<sup>6</sup> in this country, and of Neuberger and associates<sup>7</sup> in England, have clearly

With this brief survey of the anabolic side it will be my purpose now to consider the problem of catabolism. In Figure 2 an introductory skeleton outline is shown contrasting the anabolic and

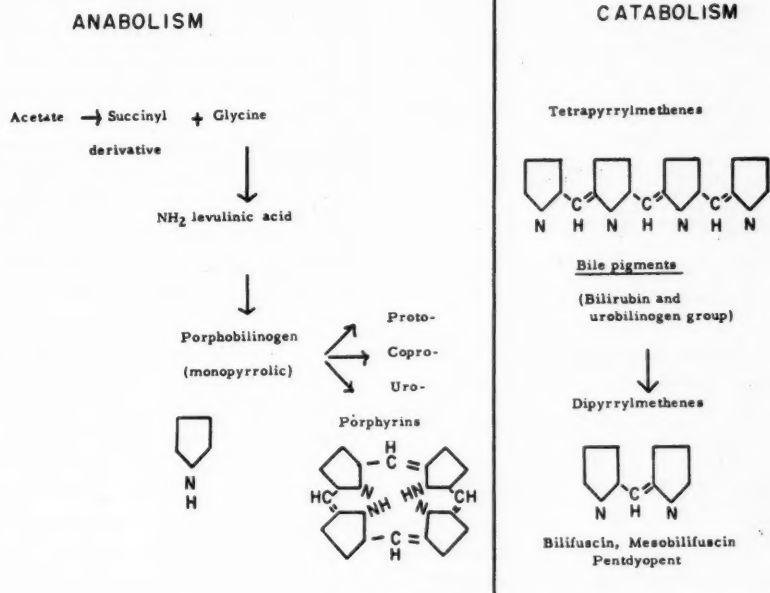


Fig. 2. The anabolic and catabolic relationships of the porphyrins and bile pigments, in skeleton outline.

shown that glycine and acetate are utilized in the biosynthesis of porphobilinogen, with  $\beta$ -ketoacidic and  $\delta$ -aminolevulinic acids as the intermediary compounds. This relationship is well shown in Figure 1, reproduced from a recent paper by Rimington.<sup>8</sup> The pathway from the porphobilinogen to the protoporphyrin of heme is not so clear. It will suffice to note at present that the concept of transition from porphobilinogen→uro→copro→protoporphyrin<sup>9,10,11a</sup> was not supported by Dr. Schwartz' studies in this laboratory,<sup>11b</sup> which suggested either that a primary change might occur in some fraction of the porphobilinogen molecule, to explain the independent formation of various porphyrins, or that the transition from uro- to copro- to protoporphyrin might occur only with proporphyrins (porphyrinogens or reduced porphyrins).<sup>\*</sup> Rimington<sup>8</sup> has recently mentioned the latter possibility.

<sup>\*</sup>In a recent study with F. Bashour and S. Schwartz, to be published in detail elsewhere, N<sub>15</sub> labeled uroporphyrinogen I was converted by dog liver homogenate, *in vitro*, to coproporphyrin and protoporphyrin.

catabolic aspects of hemoglobin metabolism, from the standpoint of the pyrrol compounds. In relation to this outline I shall strive to present what I consider to be the more important recent advances and relate them to the more essential information from the past.

## Conversion of Hemoglobin to Bilirubin

Lest there might be some thought that this subject does not have its traditional place in pathology I will commence my story by reference to the article by Virchow in the first volume of his "Archives of Pathology," 1847,<sup>12</sup> in which he documented for the first time the classical observation that hemoglobin is converted to bilirubin, or as he called it, hematoidin, when blood is extravasated in tissue spaces. Many pathologists after Virchow have concerned themselves with the problems of bile pigment formation and pathogenesis of jaundice. Among these may be mentioned Ludwig Aschoff, John McNee, George Whipple, Peyton Rous, Frank Mann and Arnold Rich. Although in the ensuing three-quarters of a

century after Virchow's observation there was continued argument as to whether his hematoidin was identical with bilirubin, the principal bile pigment, the crystallographic studies of Fischer and

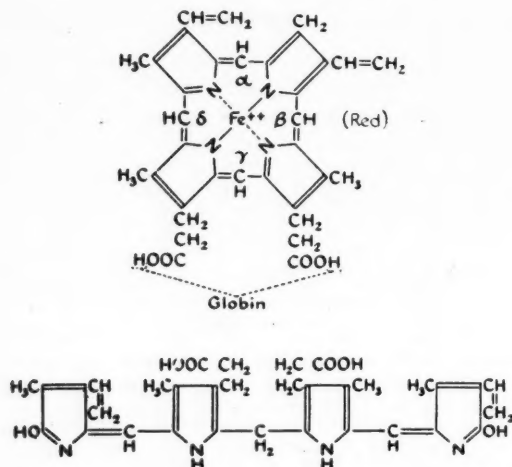


Fig. 3. Ferrous protoporphyrin globin (hemoglobin) and bilirubin.

Reindel in 1923<sup>13</sup> left no doubt that crystalline bilirubin as obtained from cattle gallstones or bile was identical with that forming in the tissues from extravasated hemoglobin. As we shall see in the following, however, there is a question whether the process of isolation from gallstones or bile induces a molecular change from a differing compound to the well-defined crystalline bilirubin.

The earlier history of the development of our knowledge of the origin of bilirubin and the pathogenesis of jaundice, these being clearly separate but closely related problems, is of much interest in its own right. I will do nothing more here than to sketch in a few of the important milestones, but to anyone who would interest himself in the earlier work on these topics, much of which has been too readily forgotten, I would strongly recommend Stadelmann's classic monograph on jaundice published in 1891.<sup>14</sup> Thanks to the generosity of Dr. Henry Ulrich, I am the proud possessor of a Stadelmann, and I have never failed to gain stimulus from reading the pages of his descriptions of the earlier work in this field.

According to Stadelmann, it was Tarchanoff who first proved beyond question that the bilirubin of the bile was derived from hemoglobin, indeed from the pigment fraction of the hemoglobin

molecule. Tarchanoff<sup>15</sup> observed striking increases of bile pigment concentration in the bile of dogs with bile fistulas, following the intravenous injection of hemoglobin solutions or of bilirubin itself, or following intravascular hemolysis induced by injection of distilled water. Minkowski and Naunyn<sup>16</sup> believed that hemoglobin was converted to bile pigment only in the liver. They worked with geese in which the administration of arseniuretted hydrogen ordinarily produced jaundice with ease. After removal of the liver, jaundice failed to appear. Stern<sup>17</sup> had previously shown that jaundice failed to appear in doves with the common duct ligated, in which the liver had been excluded from the circulation by ligation of all of its blood vessels. Stern had concluded from these experiments "that since exclusion of the liver did not lead to the collection of bile pigment in the tissues or secretion by the animal, the liver itself must be the site of formation of this pigment." Minkowski and Naunyn reached a similar conclusion with their geese and formulated the dogma "without the liver no jaundice."

With respect to Stern's conclusion, just referred to, Stadelmann made the following conservative but prophetic remark: "Can one really draw a conclusion to such an extent? There will be many careful scholars who will prefer to substitute" (in Stern's conclusion) "instead of animal organism, organism of the bird, and who will raise the objection that the organism of the mammals, especially that of man, may behave in a manner entirely different from that of doves." This prophecy of Stadelmann was fulfilled by McNee, then a young man working in Aschoff's laboratory in Freiberg, now Sir John McNee, emeritus professor of medicine in the University of Edinburgh. McNee pointed out that in geese the reticuloendothelial system is mainly concentrated in the liver and the spleen is almost rudimentary. Studying experimental hemolytic jaundice, he found evidence that conversion of hemoglobin to bile pigment was largely limited to the liver in geese, but in mammals the spleen and bone marrow assumed much greater significance.<sup>18</sup> It remained for Mann and his co-workers to perform the crucial experiment, namely, total hepatectomy in dogs.<sup>19,20</sup> I can well remember the clarity with which Dr. Mann presented the results of these beautiful experiments to this society in 1927. In brief, they revealed decisively an extra-hepatic formation of bilirubin. Quantitative de-

termination of bilirubin concentrations in the blood to and from the spleen and bone marrow showed the importance of these tissues for the conversion of hemoglobin to bile pigment. This work was

heme is a ferro-protoporphyrin, hematin a ferri-hydroxide protoporphyrin. The main excretory product of hemoglobin in the gastrointestinal tract is hematin and there is no conversion here to bile

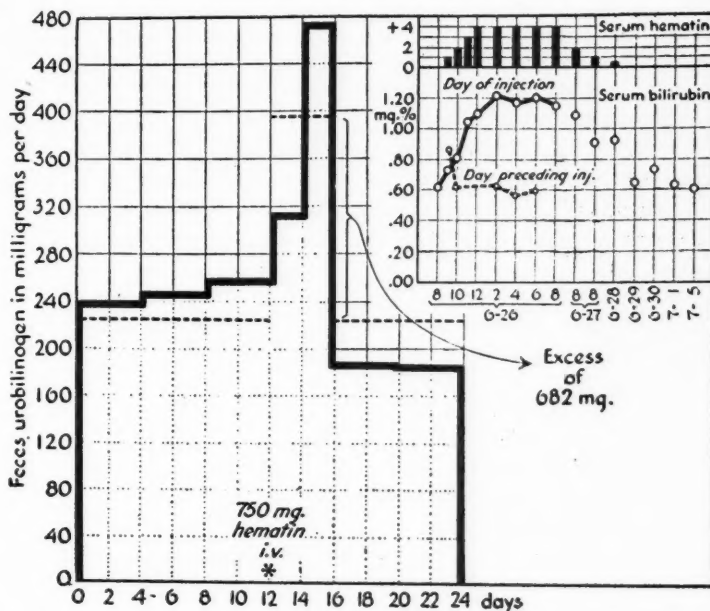


Fig. 4. Increase of serum bilirubin and fecal urobilinogen after intravenous injection of hematin in a normal adult human subject. (From I. J. Pass, S. Schwartz and C. J. Watson, *Journal of Clinical Investigation*, vol. 24, page 284, 1945. Reproduced by permission of the publishers.)

widely confirmed, and the participation of extra-hepatic tissues in the formation of bilirubin was thus clearly established.

The formulas shown in Figure 3 epitomize the problem of conversion of the heme in the hemoglobin molecule, to bile pigment. It should be noted that the hemoglobin molecule consists of four heme nuclei, as shown, for each molecule of globin, the latter comprising about 96 per cent of the weight of hemoglobin. We are only concerned here with the fate of the heme or prosthetic fraction, though, as will be indicated, there has been some belief that the protein is important in controlling the conversion of heme to bilirubin.

The exact pathway of this conversion in the body is still a matter of controversy. In the test tube hemoglobin is readily changed to hematin by relatively mild chemical treatment. This involves a change of the iron from ferrous to ferric, with addition of an OH at the iron atom. Thus

pigment. Possibly because of the ease with which hemoglobin is converted to hematin *in vitro*, earlier investigators, notably Brugsch<sup>21</sup> regarded hematin as the first intermediary in the pathway to bile pigment. Brugsch, in fact, was the first investigator to state that the intravenous administration of hematin in dogs with bile fistulas resulted in increased excretion of bilirubin in the bile. This was both confirmed and denied and there is a rather extensive literature on this controversy. The earlier work is well reviewed by Eppinger, 1920.<sup>22</sup> The most recent detailed discussion of the problem is to be found in Torben With's monograph, "The Biology of the Bile Pigments" (1954).<sup>23</sup>

Several observations led to a belief, for a time rather widely held, that hematin is a "blind alley" in hemoglobin metabolism, not converted to bile pigment. In particular this was based on the relatively rare occurrence of cases of "hematin icterus," in other words individuals whose blood

serum contained only hematin and no increase in bilirubin.<sup>24,25</sup> Such instances were cited as evidence that hematin is not converted to bilirubin. Cases of this type are, of course, quite inconclusive as one must consider that the hematin may be steadily converted by the liver to bilirubin and that this is at once excreted. In a case of renal trauma and hemorrhage observed years ago in this clinic there was marked hematinemia without increase of the serum bilirubin, yet the feces urobilinogen was greatly increased.<sup>26</sup> While this did not prove that the hematin had been converted to bilirubin and thence to urobilinogen, such an explanation was quite compatible with the data. Subsequent studies with I. J. Pass and S. Schwartz,<sup>27a</sup> in which hematin was injected intravenously in normal individuals, gave clear evidence of a quantitative conversion to bile pigment. As seen in Figure 4, the amount of urobilinogen excreted in the feces agreed very well with expectation on the basis of the amount of hematin injected. Also, a significant rise in serum bilirubin was observed. In recent years this work has been fully confirmed by London<sup>2b</sup> using N<sub>15</sub> tagged hematin; thus it is difficult to understand why the older studies of Gitter and Heilmeyer<sup>28</sup> and of Duesberg<sup>29</sup> failed to reveal evidence of increased bilirubin or urobilinogen formation following injection of hematin. In any event the concept<sup>24</sup> that hematin is a "blind alley" in hemoglobin metabolism rather than an intermediary in the pathway to bilirubin gained wide acceptance because of these observations. For reasons that are not clear, Lemberg<sup>31</sup> was unwilling to accept the belief that hematin is converted to bile pigment, and has been a principal proponent of the view that the first intermediary, rather than hematin, is a "green" hemoglobin or biliverdin-iron globin compound. The first compound of this type to be described was by Fischer and Lindner,<sup>30a</sup> using yeast, but Warburg and Negelein<sup>30b</sup> provided a more exact chemical method by the coupled oxidation of a pyridine hemochromogen with hydrazine, providing what they called a "green hemin." Lemberg<sup>32</sup> later showed that this was a double salt of biliverdin dimethyl-esterhydrochloride and ferric chloride, differing significantly from Lemberg's "green hemoglobin," the latter being obtained by a coupled oxidation with ascorbic acid.

In essence, the green hemoglobin concept of bile pigment formation as championed by Lemberg, depends upon a primary opening of the

protoporphyrin in hemoglobin by oxidative removal of the  $\alpha$ -methene bridge. The resulting biliverdin is still bound to iron and globin. The formation of free bilirubin requires a splitting off of iron and globin and the addition of two hydrogen atoms to the biliverdin molecule. All of these changes are well within the realm of feasibility, but their significance for the natural sequence of events is not clear. There is controversy as to the occurrence of green hemoglobins in relation to hemoglobin catabolism *in vivo*. Lemberg and co-workers,<sup>31,32</sup> Kiese,<sup>33</sup> Engel<sup>34</sup> and other investigators have reported that circulating red blood cells contain a small amount of a verdohemoglobin, but the more recent studies of Kench and associates<sup>35,36</sup> cast serious doubt on this concept. When anaerobic conditions were employed the amount observed was extremely small and not larger than was obtained on crystallization of oxyhemoglobin. Kench believed that these small amounts were probably formed during the isolation procedure and that the natural occurrence of verdohemoglobin in the red cells was doubtful.

While Lemberg and other proponents of the verdohemoglobin concept regard a continued attachment to globin as essential for biliverdin formation, Kench's studies clearly reveal that protein is unnecessary and that hematin is readily converted to bile pigment *in vitro*, under appropriate conditions. It is true that in their experiments the yield was consistently better when the heme ( $\text{Fe}^{++}$ ) or hematin ( $\text{Fe}^{+++}$ ) was combined with protein, either globin or albumin, but it appeared that the sole function of the protein in this regard was the protection of the biliverdin against further oxidation after it was once formed. It was also clear in these experiments that the state of the iron in the molecule was unimportant; just as good conversion was observed with ferric iron in hematin as with ferrous iron in hemoglobin or heme. It may also be noted that London<sup>3c</sup> has demonstrated the *in vivo* conversion of N<sub>15</sub> protoporphyrin, as well as hematin, to bile pigment. Previous studies in this laboratory,<sup>27b</sup> in bile renal fistula dogs, had failed to provide evidence of such conversion but admittedly did not exclude it. Further work is necessary to elucidate the possible significance of protoporphyrin as an intermediary in bile pigment formation, under normal or abnormal conditions.

Thus the exact pathway along which hemoglobin is converted to bile pigment in the mam-



malian organism is not yet clear. Bingold and Stich<sup>37</sup> in their recent and latest review of this subject state that "in contrast to the still incomplete knowledge of the biosynthesis of hemoglobin it is possible today to provide an exact statement as to the biochemistry of hemoglobin catabolism." With all of the recent evidence in mind, especially the exact knowledge of the biosynthesis of protoporphyrin gained in the classic studies of Shemin and co-workers, and despite the optimism of Bingold and Stich, one is inclined to the belief that the opposite is more nearly correct and that our present knowledge of anabolism is more exact than that of catabolism. If, as according to Bingold and Stich, one accepts without question the Lemberg concept that the pathway *in vivo* is solely via a green hemoglobin and that hematin is not an intermediary under any circumstances, one may acquire a sense of security such as evidenced in their statement, quoted above. Yet a careful examination of the evidence makes one realize that this may be incorrect. The objection that hematin is never observed under normal circumstances, but only in the presence of hemolysis and especially hemolysis associated with liver injury, in no way proves that hematin is not formed as a normal intermediary and at once converted to bilirubin either in the liver alone, as Aschoff<sup>38</sup> assumed, or more widely, throughout the reticuloendothelial system. It should be emphasized that Mann and co-workers<sup>20b</sup> regularly observed hematin at the outset of increased bilirubin formation in extrahepatic sites and definitely regarded it as a normal intermediary between hemoglobin and bilirubin.

Earlier observations with I. J. Pass in this laboratory<sup>20</sup> indicated that epithelial specialization of cells is associated with a diminished production of the ferment necessary to bilirubin formation when hemoglobin is extravasated. In such areas hematin was often encountered without bilirubin whereas in spaces lined by mesenchymal cells bilirubin was often encountered without hematin, following extravasation of blood. These observations, however, permit two interpretations: one, that the epithelial cells do not have the ability of further conversion of hematin to bilirubin while the mesenchymal cells do; the other, that the epithelial cells convert hemoglobin to hematin, the mesenchymal cells hemoglobin to bilirubin, without hematin as an intermediary. The presence of hemoglobin, hematin and bilirubin in some fluids may perhaps be somewhat more indicative of the former possi-

bility. It should be noted that the conversion of hematin to bilirubin may well proceed over a verdohematin analogous to the "green hemoglobin." It is quite possible that both pathways are included in the natural sequence of events, variations in emphasis depending on as yet unknown factors.

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(To be continued in June issue)

## THE POSITION OF RADIOLOGY IN CARDIOVASCULAR DIAGNOSIS

(Continued from Page 280)

evidence of pulmonary sequestration by demonstrating the anomalous vascular supply to a segment of lung from the aorta directly. The method is useful as well in demonstrating arteriovenous communications in lung (Fig. 11) and to differentiate between gross cardiac dilatation and pericardial effusion. It has been used with profit to study pulmonary neoplasms.

The present position of radiology in cardiovascular diagnosis is one of major importance and each month that position is broadened and strengthened. In this field close co-operation with the specialties of cardiology and surgery is man-

datory if the full benefits of angiography are to be realized. The haphazard employment of the new and complex methods is not to be recommended and the most glittering radiographic images are of little value until they have been thoroughly and expertly analyzed. The required apparatus is costly and highly specialized, but the great value of the diagnostic results to be expected justifies the capital investment and the detachment of able radiologists from other endeavors to devote themselves to this type of work and the further advance of knowledge. The future of cardiovascular radiology appears to be brilliant and assured.

# Continuation Studies

## FRACTURES OF THE METACARPALS, METATARSALS AND PHALANGES

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Fractures of the metacarpals and phalanges of the hand and metatarsals and phalanges of the foot are very common problems with which we all have to deal. Although these are not considered major fractures, the proper handling of them leads to a much happier patient and a quicker and more complete functional rehabilitation of the injured parts.

Fractures of the phalanges of the toes are common and of importance largely only because of their nuisance quality. Most of these fractures can be successfully treated by reassurance and by the use of proper foot wear. This involves the use of a stiff sole (largely preventing motion in the toes incurred in walking) and relief from pressure on top of the toe from the upper portion of the shoe during the period which the toe may be swollen and painful. The use of traction can probably well be reserved for displaced fractures extending into the articular surface at the metatarsal-phalangeal articulation, particularly in the great toe.

The metatarsal bones of the foot tend to splint one another quite securely so that they do not usually become greatly displaced when fractured except with severe injuries. Treatment again can frequently be accomplished by the use of a stiff soled shoe with reinforced shank and proper longitudinal and anterior arch supports. At times greater comfort can be obtained by the use of a well applied short boot cast molded carefully beneath the foot and application of a walking heel.

The frequently seen avulsion type fracture at the base of the fifth metatarsal may go on to fibrous union when displaced but is seldom symptomatic. In children, confusion with the epiphysis present at the base of the fifth metatarsal should be avoided. This will be bilateral and smooth. There is present in some feet a separate ossicle in this area, the os vesalianum, which again is usually bilateral and smooth.

The possible occurrence of "march" or "stress" fractures of the metatarsals is generally well known today. The rather spontaneous nature of this fracture or the appearance of callus or new bone involved in healing should not lead to consideration of biopsy nor amputation for bone tumor.

Avoidance of over-treatment of fractures of the foot may help to decrease the occasional prolonged rehabilitation seen with the development of painful osteoporosis.

In contradistinction to the toes, the function of the fingers is of extreme importance; and treatment of fractures of the phalanges in the hand is aimed toward the early re-establishment of this high degree of functional capacity. In general, splinting of fractures in the hand should be accomplished in functional position, this being the position of partial flexion. Tongue blade splinting is to be avoided. Splinting should be maintained only for that period necessary to allow sufficient healing to insure stability of the fractured fragments. Active motion may then be started to prevent undue stiffening of the metacarpal-phalangeal and interphalangeal articulations.

Fractures of the distal phalanx will usually merely require protection, particularly when the finger nail is intact. Fractures of the middle and proximal phalanx may require traction in order to prevent shortening and to maintain alignment. This traction may be either skeletal or occasionally skin traction. Traction should be applied over a curved splint, and the fact that each finger flexes in a different axis of rotation at the metacarpal-phalangeal articulation should always be remembered. Fractures extending into the joint at the base of the second and third phalanges are particularly troublesome and tend to give a broad and partially subluxated joint unless traction is maintained until good healing is present.

Fractures of the neck of the metacarpals are frequently seen particularly in the fifth and fourth

metacarpals. Because of the nature of the fracturing force, the head is usually tipped forward into the palm and this palmar prominence of the head must be corrected in order to prevent a pressure point which may afterwards be bothersome in gripping. This angulation can usually be corrected by manipulative pressure using the flexed proximal phalanx to push against the palmar surface of the head of the metacarpal. In fractures of the shafts of the metacarpals, rotation deformities must again be considered and can be prevented by accomplishing reduction with the fingers flexed at the metacarpal-phalangeal joint and in apposition to one another.

Special attention should also again be called to the fracture at the base of the first metacarpal in the thumb which extends into the joint and allows a subluxation or dislocation of the main

metacarpal fragment. This is called Bennett's fracture. It is important that these fractures be maintained with complete abduction of the first metacarpal, and as it is an unstable fracture, frequently slipping after reduction, traction on the abducted thumb is usually necessary. It is important that frequent radiographic checks be used in the first two weeks following reduction to see that position is maintained.

A word should be said about the use of Kirschner wires in the treatment of fractures of the metacarpals and phalanges. Fine Kirschner wires are frequently of great benefit in the treatment of these fractures and may at times allow early use of other portions of the hand.

By reviewing these injuries it is hoped that the reader may facilitate the care and rehabilitation of these common fractures.

#### GALACTOSEMIA

The cause of an often fatal metabolic disease of children has been discovered by scientists of the Public Health Service's National Institute of Arthritis and Metabolic Diseases, according to Surgeon General Leonard A. Scheele.

Drs. Herman M. Kalckar, Elizabeth P. Anderson, and Kurt J. Isselbacher, in work conducted at the National Institutes of Health, Bethesda, Maryland, have unraveled much of the mystery surrounding the little understood children's disease, galactosemia, also known as galactose diabetes.

This disease ordinarily appears within a few days after birth. The infant suffering from galactosemia is unable to utilize or even tolerate milk in any form. Lactose, often called milk sugar, contains another sugar, galactose. This substance cannot be handled by the child's system if he has galactosemia.

The Institute scientists have discovered a hitherto unknown enzyme in normal red blood cells, which they call P-Gal transferase. This enzyme, they found, is necessary to complete conversion in the body of galactose into glucose, the common sugar of the blood.

Diagnosis of galactosemia is difficult because the symptoms are similar to those of other disorders. Diarrhea, lack of appetite, loss of weight, and jaundice appear in the earlier stages. In later stages, it leads to

cirrhosis of the liver, mental retardation, blindness due to cataract, and death.

Early recognition of galactosemia is highly important, since the disease progresses rapidly, leaving serious irreversible changes. On the other hand, when diagnosed in an early stage, treatment is simple. The affected child, placed promptly on a milk-free diet, will grow and develop normally.

The discovery of the basic cause of the disease promises to provide a rather simple diagnostic test, making earlier life-saving treatment possible.

Scientists at the Institute became interested in the disease when research workers in Manchester, England, reported certain abnormalities in the red blood cells of infants with galactosemia. Their own work has revealed that the enzyme, P-Gal transferase, which they had found in normal blood, was missing in the blood of children with this disease, and that this inherited metabolic defect was the basis of the disorder. A report on their research is published in a recent issue of the Proceedings of the National Academy of Sciences.

Knowledge of P-Gal transferase not only makes possible the development of a rather simple diagnostic test for galactosemia, but it also points the way to exploration of the distinct possibility that impairments in galactose metabolism may be a factor in other disorders of unknown origin.





## DIAGNOSIS AND TREATMENT OF THROMBOANGIITIS OBLITERANS (BUERGER'S DISEASE)

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Thromboangiitis obliterans is a segmental inflammatory obliterating disease of the arteries and veins of the extremities that tends to produce ischemia of tissues and occasionally gangrene. It occurs almost exclusively in young and middle-aged men. Typical lesions rarely occur in the viscera but patients who have the disease also have a somewhat increased tendency to undergo occlusion of the coronary, cerebral and mesenteric arteries later in life as the result of atherosclerosis, a different pathologic process.

The exact cause of thromboangiitis obliterans is not known. However, available evidence indicates that the most important factor in almost all persons in whom the disease develops is a peculiar individual susceptibility of the vessels of the extremities to endothelial injury as the result of absorption of some product in tobacco smoke.

### Diagnosis

The ultimate criterion for the diagnosis of thromboangiitis obliterans is a rather typical histopathologic picture found in the affected vessels; these characteristic changes include endothelial proliferation, occlusion of the lumen by a thrombus, extremely cellular organization of the thrombus and diffuse panangiitis without necrosis or destruction of the medial coat. Not found are sub-endothelial atheromatous lesions containing fat and cholesterol or subendothelial or medial calcification. Primarily, the lesions affect small and medium-sized arteries, such as the posterior tibial, anterior tibial and major digital arteries. In addition, veins accompanying these arteries and superficial veins of comparable size are frequently affected. The disease almost never begins in large

arteries, such as the femoral and iliac, but occasionally it progresses into them from more distal branches.

The diagnosis of thromboangiitis obliterans almost always can be made clinically and without resorting to arterial biopsy. In making the diagnosis, it is important to remember that thromboangiitis obliterans is only one of several diseases that may produce ischemic manifestations in one or more extremities. It is most likely to be confused with arteriosclerosis obliterans. Sometimes, but less commonly, it is confused with peripheral arterial embolism, simple arterial thrombosis, scleroderma (acrosclerosis), Raynaud's disease, ergotism and arterial occlusions due to acute or chronic occupational trauma. In making the diagnosis of thromboangiitis obliterans, it is first necessary to establish the fact that occlusive arterial disease exists in one or more of the extremities.

*Intermittent Claudication.*—Intermittent claudication is an almost pathognomonic symptom of occlusive arterial disease. The currently accepted definition of intermittent claudication is a pain, ache, tightness, or sense of abnormal fatigue felt in the region of certain groups of muscles in the extremities that is never present during rest, develops only after a period of sustained exercise of the muscles and is relieved rather promptly by rest without change of position. Intermittent claudication is not a disease. It is a symptom and it indicates only the presence of some type of occlusive arterial disease. It may occur as the result of thromboangiitis obliterans, arteriosclerosis obliterans, arterial embolization or simple arterial thrombosis. In thromboangiitis obliterans, it may occur in the calf or in the arch of the foot, where it may be mistakenly attributed to mechanical derangements of the foot and arch. Intermittent claudication in the thigh or hip is rarely

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The Mayo Foundation, Rochester, Minnesota, is a part of the Graduate School of the University of Minnesota.

seen in thromboangiitis obliterans. Other types of pain that may occur in cases of more advanced chronic occlusive arterial disease in which the evidence of ischemia in the affected extremity is more obvious are rest or prethrophic pain in digits, pain associated with ulcers or gangrene and pain associated with ischemic neuropathy of major nerve trunks.

**Arterial Pulsations.**—The objective manifestations of chronic occlusive arterial disease are impairment or absence of pulsations in one or more of the major arteries of the extremities and, in advanced disease, abnormal pallor of one or more of the extremities on elevation, with delay in the return of color and in filling of superficial veins on dependency after elevation. Also, there may be abnormal and persistent coldness of one or more of the extremities or of one or more individual digits, persistent bluish or reddish discoloration of one or more digits, and gangrene or ulceration of one or more digits or parts of the foot.

In examination for impairment or absence of arterial pulsations, the brachial arteries, antecubital arteries, radial and ulnar arteries at the wrist, femoral arteries in Scarpa's triangle, popliteal arteries, posterior tibial arteries behind the internal malleoli and dorsalis pedis arteries should be palpated. However, impairment or absence of pulsations in one or both dorsalis pedis arteries is not necessarily significant of occlusive arterial disease, since these arteries are small or absent as the result of developmental anomaly in about 5 per cent of normal persons. Impairment or absence of pulsations in the posterior tibial arteries, however, is almost certainly indicative of chronic occlusive arterial disease. If the diagnosis of occlusive arterial disease has been established by objective examination, it is almost always possible to determine clinically the nature of the underlying arterial disease.

**Other Diseases.**—Raynaud's syndrome, or transient blanching of one or more of the digits on exposure to cold, may occur in thromboangiitis obliterans. The involvement of the digits is almost always asymmetric, whereas in true Raynaud's disease the involvement is usually symmetric. Arterial pulsations are not impaired or absent in true Raynaud's disease. The occurrence of sclerodactylia or scleroderma associated with Raynaud's syndrome indicates the presence of

acral scleroderma (acrosclerosis), not thromboangiitis obliterans.

Ergotism is comparatively rare in this country except when the patient has taken or been given medicine containing ergot or its derivatives. Ischemia of the extremities produced by ergotism is almost always symmetric, whereas it is almost always asymmetric in the other chronic occlusive arterial diseases. If arterial occlusion is due to arterial embolism, there will almost always be coexistent serious cardiac disease in the form of recent myocardial infarction, auricular fibrillation or subacute bacterial endocarditis. Also, the onset of the ischemic manifestations produced by embolization of the extremity almost always will have been marked by sudden arterial occlusion, whereas sudden occlusion of large arteries is not common in thromboangiitis obliterans. Simple or essential arterial thrombosis is rare and usually is associated with polycythemia vera, severe infectious disease or advanced malignant neoplasms. When none of these are present, the diagnosis of simple arterial thrombosis should be made with great caution.

**Thromboangiitis Obliterans Versus Arteriosclerosis Obliterans.**—The two commonest chronic occlusive arterial diseases are thromboangiitis obliterans and arteriosclerosis obliterans. Some difficulty may be encountered at times in differentiating these two conditions, although the clinical features now to be mentioned usually permit such distinction. Thromboangiitis obliterans almost always produces its first clinical manifestations before the age of forty years, whereas arteriosclerosis obliterans usually appears after the age of forty. There are a few exceptions to this rule, however, and patients who experience the first signs of ischemia in an extremity between forty and fifty years of age may have either disease. Thromboangiitis obliterans is rare in women (1 per cent), whereas about 15 to 20 per cent of cases of arteriosclerosis obliterans occur in women. The presence of definite signs of ischemia in one or both hands associated with similar manifestations in the lower extremities is strong evidence in favor of thromboangiitis obliterans, since such ischemic manifestations are almost unknown in the upper extremities of patients who have arteriosclerosis obliterans. A good history of thrombophlebitis or the actual presence of the lesions of superficial thrombophlebitis in small veins in association with occlusive arterial disease occurs in about 40 per cent of

patients who have thromboangiitis obliterans but practically never is noted in arteriosclerosis obliterans.

The following are almost certain indications that the disease in question is arteriosclerosis obliterans rather than thromboangiitis obliterans: (1) roentgenographically demonstrable calcification in the femoral or iliac arteries; (2) the presence of diabetes mellitus; (3) increased values for plasma cholesterol and total lipides and (4) a systolic bruit heard over a femoral or iliac artery or over the abdominal aorta. In the age group in which there is most likely to be a question as to the differentiation of thromboangiitis obliterans and arteriosclerosis obliterans, absence of pulsations in popliteal and femoral arteries is much less common in thromboangiitis obliterans except when the disease has been present for a considerable period, with gradual progression.

### Treatment

Thromboangiitis obliterans is characterized by exacerbations when new segments of arteries become occluded and remissions when there is slow development of collateral circulation around the occluded segments. The most important feature in the treatment is absolute insistence on abstinence from tobacco smoking. If the patient completely discontinues smoking, exacerbations of the disease are almost unknown. If the diagnosis is made early in the course of the disease and if the patient stops smoking, the collateral circulation may develop to a point at which all symptoms and signs disappear other than absence of pulsations in some of the arteries.

*General Measures.*—An important part of the management of patients who have thromboangiitis obliterans is instruction regarding care of the feet and hands and avoidance as far as possible of any minor or major injury to them, whether it be of mechanical, chemical, or thermal origin. As in all conditions associated with chronic ischemia of an extremity, most instances of gangrene or ischemic ulceration develop as the result of some minor and avoidable trauma, such as pressure on toenails from ill-fitting shoes, cuts or bruises, overtreatment of fungous infection or ill-advised treatment of corns, calluses or ingrown toenails. Major or even minor surgical operations on the feet or toes should never be undertaken in any patient until it has been determined that ischemia or evi-

dence of occlusive arterial disease is absent; if signs of such disease are found, the surgical procedure should be deferred in almost all instances. The local application of strong chemicals should be avoided. Patients who have thromboangiitis obliterans should be warned to avoid exposure to cold, since even a minimal degree of such exposure sometimes may result in frostbite in an ischemic extremity. Also, they should be warned not to use any hot dry objects, such as hot-water bottles or electric pads, to warm an ischemic extremity. Unfortunately, many patients with thromboangiitis obliterans do not come under the care of a physician until the disease is well advanced. In these patients, considerable permanent damage already may have been done to the arterial system in one or more extremities, and the complications of ischemic ulceration or gangrene already may have occurred.

Patients who have ulcerative or gangrenous lesions should be treated in the hospital and should be kept off their feet in a warm room (75 to 80° F.). Only bland topical applications should be used on the lesions. The use of warm soaks with a solution of boric acid for 20 to 30 minutes two to four times a day, with application of simple dry dressings between soaks, constitutes a simple and safe local treatment. When gangrenous tissue has sloughed and residual ulcers are relatively clean, the use of powdered erythrocytes may expedite healing. In general, ulcers and gangrenous lesions should be undertreated rather than overtreated, since many local preparations and ointments that would be harmless when used in the absence of ischemia may aggravate and cause extension of lesions when ischemia does exist.

Local infection in the surrounding tissues almost always is associated with gangrenous and ulcerative lesions, and the organism usually responsible for this infection is *Micrococcus pyogenes* (*Staphylococcus*). Oral or parenteral antibiotic therapy may be of considerable value in eliminating these local infections, thus giving the tissues a better chance to heal. The most effective current antibiotic against the largest number of strains of *M. pyogenes* should be used unless it is possible to obtain the specific organism by culture and determine its sensitivity to various antibiotics.

*Surgical Treatment.*—Regional surgical sympathetic ganglionectomy is of value in many patients who have thromboangiitis obliterans and contra-

indications to this procedure rarely exist. The operation is not necessary when the disease is mild and early and is associated with minimal evidence of digital ischemia, whereas the procedure is futile in the presence of advanced ischemia, with extensive gangrene extending into the foot. When gangrene is confined to one or more digits, it is usually advisable to wait until evidence of progression has stopped before sympathetic ganglionectomy is done. Sympathectomy is indicated in most cases of moderate ischemia with or without minor ulcerative or gangrenous lesions. The use of various drugs for the production of vasodilatation is not often of value and is distinctly inferior to sympathetic ganglionectomy.

When mass gangrene of digits or portions of digits exists, surgical intervention should not be attempted until all evidence of local infection and inflammation around the line of demarcation has disappeared. Even then it is usually best to wait and allow the gangrenous tissue to slough spontaneously, but in some instances healing may be expedited by gentle débridement through the line of demarcation. Amputation of the entire toe through its base occasionally may be advisable; when this is undertaken, it should be always recognized that healing may be delayed and that more gangrene may develop at the site of amputation. Even in patients who have severe and persistent pain with gangrenous lesions, amputation of a leg should be delayed as long as possible. If smoking is stopped and unless the gangrene extends into

the distal part of the foot, the lesions usually will heal ultimately. When gangrene extends into the foot, the ultimate survival of a useful foot is unlikely and amputation through the midcalf is almost always necessary.

Currently, surgical excision of occluded segments of arteries with replacement by arterial homografts or prosthetic tubes is not practical in thromboangiitis obliterans because of the small size of the involved arteries and the multiplicity of the occluded segments.

### Summary

Thromboangiitis obliterans is a specific disease entity but it is only one of several occlusive arterial diseases that involve extremities. The diagnosis almost always can be made clinically and the condition usually can be distinguished from other chronic occlusive arterial diseases, including arteriosclerosis obliterans, which is a somewhat more common disorder.

The treatment of thromboangiitis obliterans consists of complete abstinence from smoking tobacco, careful protection of involved extremities against major and minor chemical, mechanical and thermal trauma, regional sympathetic ganglionectomy in most cases, conservative local treatment and antibiotic therapy for ischemic ulcerative and minor gangrenous lesions, and conservative amputation or débridement for mass gangrene of digits.

### CHRONIC PYURIA

(Continued from Page 284)

In some cases an infection will clear with a particular antibiotic, only to recur as soon as it is stopped. Here one should reinstitute the original treatment until the urine clears, then gradually reduce the dose in an effort to ascertain the minimum which will keep the urine clear without harming the patient. One such patient of mine has taken one 250 milligram capsule of aureomycin daily since it first became available, without any ill effects; if he stops it, his urine clouds up at once. Since he has large bilateral hydronephroses which preceded a successful transurethral resection, this suggests the potential usefulness of this regimen.

A method used at the Mayo Clinic in similar

circumstances involves giving the agent which has been found to be capable of clearing the urine for one week of each month.

Careful application of the principles outlined in this presentation will control the majority of urinary infections one should not hesitate to repeat any indicated part of the investigation to make sure that nothing has been overlooked. A few will persist regardless of the methods used to combat them; in the present state of our knowledge we must await the development of new agents. Fortunately, some of these patients will survive, apparently unharmed, for many years especially if the kidneys do not become involved.



# Public Health

## DIAGNOSTIC STANDARDS AND CLASSIFICATION OF TUBERCULOSIS

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The tenth edition of *Diagnostic Standards and Classification of Tuberculosis*, published by the National Tuberculosis association, has recently been distributed to Minnesota physicians, medical students and public health nurses by the Minnesota Tuberculosis and Health Association.

Designed to bring the reader up to date in several fields, the new edition is the result of almost two years of work by an American Trudeau Society committee headed by William Spencer Schwartz of the Veterans Administration Hospital, Oteen, North Carolina.

In a revision of the clinical classification of pulmonary tuberculosis, the term "arrested" has been dropped and the nomenclature confined to "inactive," "active," and "activity undetermined." A section on the diagnosis of nonpulmonary tuberculosis and a section on fungi pathogenic for man have been added. The latter addition was made because some fungi "produce diseases that mimic the clinical and pathological signs of tuberculosis to such an extent that the mycoses must be considered in making a differential diagnosis."

The section on the tuberculin test has been enlarged to an entire chapter in recognition of its growing importance. Abstracts from this chapter follow:

"There has been much discussion of the value of the tuberculin reaction as a case-finding tool. As a screening test it identifies on the one hand persons who do not need further testing or examination for the presence of tuberculosis, and on the other those who do need further study. Its value as a screening test is generally low in population groups where tuberculosis infection is so widely disseminated that the majority of persons react, and correspondingly high in population groups where dissemination is restricted and few react to the test. The tuberculin test has special value when employed periodically in groups with unusual exposure to the disease, such as nurses, doctors, and students in

hospitals or other places where cases of tuberculosis may be concentrated."

"... Of the tuberculin tests, the intracutaneous method is the most sensitive. It permits the administration of accurately graduated amounts, thus making it possible to detect cases with a low threshold of sensitivity to tuberculin. The general use of the Pirquet and the patch tests is not recommended since they are not as reliable as the Mantoux, particularly in adults."

Changes in the treatment of tuberculosis are reflected in the insertion of a chapter on bacteriology as it relates to chemotherapy in which special attention is paid to the principles involved in tests to determine the drug-susceptibility of tubercle bacilli. Several paragraphs are devoted also to a description of methods to be employed in order to study bacteria in lesions removed by surgery.

The chapter on screening classification for mass chest x-ray surveys deals with two kinds of mass surveys which have been "highly successful"—community-wide and special group surveys. Emphasis is placed on the importance of x-raying all hospital admissions and outpatients. "The effort to promote and maintain the hospital's interest in this program is well repaid," the book states, "as experience indicates a three to four times greater incidence of tuberculosis than is found by chest roentgenologic surveys of the general population. Also, attention may be drawn to other pulmonary and cardiac abnormalities hitherto unrecognized."

Ever since 1917, when the first formal edition appeared, *Diagnostic Standards* has made possible a uniform interpretation of diagnostic findings in tuberculosis and served as a guide for terms used to designate the disease state. Today, *Diagnostic Standards* is known the world over. It is the standard reference book for medical students in this country and is widely quoted in medical literature in this country and abroad.

# Editorials

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ARTHUR H. WELLS, M.D.  
HENRY G. MOEHRING, M.D.

## CHANGING CONCEPTS IN PSYCHOSOMATIC REACTIONS

The fact that psychophysiological mechanisms play a significant role in the development of disease is almost universally accepted by both medical scientists and clinicians. However, when it comes to formulating the nature and mechanics of the psychophysiological processes, there has been much less general agreement. The medical literature reflects definite changes in psychosomatic theory. Earlier studies associated typical overt personality descriptions with specific psychosomatic disorders as, for example, the driving, ambitious, successful person with peptic ulcer. Following this, there was an attempt to attribute the cause of a particular disorder to psychological factors which were both specific and symbolic. Peptic ulcer was said to result from a conflict between the wish to be cared for and a striving for independence. More recently, the trend has been to consider that many different psychological factors may produce a given disorder with the nature of the response depending upon constitutional factors and acquired vulnerability of the organ involved. Thus, peptic ulcer may be produced by conflict over dependency needs, conflict about expressing hostile or aggressive impulses, conflict regarding sexual (masculine-feminine) drives, or combinations of these conflicts within a given individual.

This concept of multicausality has become increasingly popular under the aegis of controlled laboratory and clinical research. One reads with increasing frequency statements to the effect that investigators are less impressed with differences in the personality structures of patients with different psychosomatic reactions than with the similarities. Whether continued research will support the multicausality concept of psychosomatic reactions remains for the future. What does seem important at this point is that the problem is continually being more objectively evaluated by research methods rather than by setting about to "prove" by *post facto* means a particular pet theory as had been done earlier.

CLARENCE J. ROWE, M.D.

## AGAMMAGLOBULINEMIA

Agammaglobulinemia, a newly recognized metabolic disorder of the reticulum mesenchyme, was first described by Bruton in 1952. His initial observation of electrophoretically absent gamma globulin in a pediatric patient suffering from repeated bacterial infections sounded the keynote to this disease. Subsequently, as many more reports began to appear in the literature and clinical experiences accumulated, two distinct forms were delineated, the congenital and the acquired types. The congenital type occurs only in male children and is transmitted as a Mendelian sex-linked recessive trait. The acquired type is found in both male and female adults, with no particular selective differentiation with regard to age, and a history of previous good health is usually obtained.

The concept of immunologic paralysis in this disease became apparent quite early to students of this disorder, in that in either the congenital or the acquired type, recurrent bacterial infections appear to be a common denominator. Other findings common to both include absence of iso-hemagglutinins, failure of plasma cell formation, absence of antibodies from the blood and tissues, and failure of immunologic response to antigenic stimulation. A classical demonstration of the above was the successful transplant of a homograft to an agammaglobulinemic patient by Good and Varco.

An important relationship stressed by Good has been the absence of gamma globulin and concomitant failure of plasma cell production. This would implicate the plasma cell as being responsible for the formation of antibody and probably gamma globulin as well. In one of Good's patients who had resection of a lobe for bronchiectasis, microscopic sections failed to reveal the presence of any plasma cells. Although, characteristically, this cell type is very commonly encountered by pathologists in chronically diseased tissues, no plasma cells were found on microscopic examination in this patient. Further antigenic stimulation of lymph nodes, which in the normal person regularly results in medullary plasma cytolysis, fails to

induce plasma cell formation in nodes of the agammaglobulinemic patient.

Hypogammaglobulinemia and agammaglobulinemia may be encountered as either a manifestation of a physiologic phenomenon or the result of a disease state apart from agammaglobulinemia. The former is encountered as a delayed assumption of gamma globulin production on the part of the infant, during which time progressive decrease in the serum level of the passively transferred maternal gamma globulin is occurring. During this time, susceptibility to bacterial infections may be increased just as in congenital agammaglobulinemia.

The occurrence of hypogammaglobulinemia may be noted as part of the nephrotic syndrome in children. Here, however, hypo albuminemia differentiates between the electrophoretic patterns in the two conditions.

Paradoxically, agammaglobulinemic patients seem to handle most virus infections well. However, virus hepatitis resulting in liver destruction and death has occurred in these patients.

Prophylactic treatment with gamma globulin has proved successful in children. Although there is some question of its efficacy in adults, at present it seems the treatment of choice for agammaglobulinemia. The recommended dosage is 0.6 cc. of standard gamma globulin preparation per Kg body weight given at four-week intervals. It may be that the prophylactic antibiotic treatment will offer even better protection of adults with agammaglobulinemia or that a combination of the two approaches will be the most effective means of preventing disease in these patients.

WILLIAM F. MAZZITELLO, M.D.

ROBERT A. GOOD, M.D.

*University of Minnesota*

## ESTATE PLANNING FOR PHYSICIANS

It has been said that it is just as important for every doctor to have a well-conceived, current estate plan for the benefit of his family as it is for every family to have the services of a doctor. This is true. No course of treatment is possible if death eliminates the opportunity to plan one's affairs.

In our work as executor of wills, as trustee of both living trusts and trusts under wills, and as investment agent, we have seen the estate plans of many doctors, which have been prepared by their attorneys. It has been our duty, acting either alone

or in conjunction with a friend or a member of the family, to carry out the terms of the plan as expressed in the will or trust agreement. From this experience, we can make certain generalizations. Often the estate of the doctor consists of a fine home, a comparatively large life insurance program, securities, and the value of his practice. The latter may be a sole interest or a partnership interest. In rural areas, the doctor may have investments in farm lands.

The value of all of the above property is includable in the doctor's taxable estate. In most cases, this value exceeds \$60,000, the amount of the federal estate tax exemption. Thus, the doctor needs the benefit of careful estate planning to make sure his estate qualifies for the "marital deduction." This is a provision which enables an estate owner to pass to his surviving spouse, either outright or in trust, one-half of his estate free of federal estate taxes. It is also very important that the "second set" of taxes be saved for the benefit of his children.

The doctor should be sure that the management of his assets will be in experienced and competent hands after his death to assure the security of his family and to relieve his wife of these unfamiliar burdens. If the doctor is relatively young, he should be concerned about not only the care and support of his wife in the event of his death, but also the education and maintenance of the children if both he and his wife die during the minority of the children.

If he is in a partnership, it is probably advisable that he have a partnership agreement, and in many cases a buy-and-sell arrangement with the other partner or partners, possibly funded by life insurance.

If the doctor is in a high income tax bracket and has any sizable amount of income-producing assets, he may find it advisable to create short-term trusts, the income from which, during the ten-year period, could be taxed either to the trustee or to his children.

The doctor may find it advisable to make gifts and use part or all of his gift tax exemptions, both state and federal. Such gifts would remove part of his estate from the top death tax brackets.

Since the doctor is a busy man engaged in the most rewarding of all professions, from the standpoint of service rendered to humanity, he very seldom can give adequate time to his own financial affairs. He should investigate the services of-

ferred in an investment management agency account, in which investment recommendations are made to him, his entire portfolio is constantly reviewed, and all detailed work is done for him.

Because estate planning is the best use and arrangement of a person's property to carry out his objectives, every doctor needs estate planning to a greater or lesser degree as every layman may need medical assistance in varying degrees. Where does the doctor get his estate planning help? The key man is the attorney. All legal instruments, such as a will or a trust agreement, and the solution of all legal questions are matters for the doctor's own attorney.

Any trust company will be happy to share with the doctor the experience it has gained in the practical administration of many estates and trusts.

HARRY L. HOLTZ

*First Trust Company of Saint Paul*

## PAINT—ITS USE AND VALUE

Although paint and protective coatings have many uses and affect many phases of everyone's life, we might consider in a very limited manner its value as protection of property—home, building and the like—and its value as beauty and decoration.

As a protective coating, paint is used to guard and protect property against the weather and ravages of rust and rot. Of course, thinking of exterior painting, the value of the home is also enhanced by beautifying its appearance. Exterior paint makes houses more pleasing to live in and gives people pride in their homes and neighborhood.

In studying the painting of the exterior and interior of a home, we run into the same problems that affect every type of structure, be it a store building, office, school, or institution. The exterior of a house may be constructed of a combination of materials such as wood, concrete, stone, brick, shingles (wood, asphalt, cement-asbestos), sash and doors of wood, aluminum and steel, all of which require different paint materials for the different assignments for protective coating and color. Whether you do the painting yourself as a hobby or out of necessity, or hire someone to do it for you, you should seek the advice and information regarding preparation, types of materials and methods of application from some reliable paint salesman or paint store or the services of a reputable painting contractor adequately covered with

insurance. Too often paint failures result from improper preparation, application and materials that cause no end of trouble and expense later on. The very best paints placed in the hands of unskilled or careless individuals will usually be applied improperly and result in unsatisfactory service and appearance. A few basic principles to remember when painting are: (1) be sure the surface you are painting is dry, (2) that moisture is not trapped behind the paint, (3) that paint is not applied in too heavy a coat and the old coatings that are too thick, scaling and cracking have been removed before applying another coat, (4) that each coat of paint is thoroughly dry before another is applied, (5) and, last but not least, that the proper type of material for the surface to be painted is selected and that quality material is used.

The interior of a home or building, of course, is not painted with any thought of protection against weather damage but as protection against the hard knocks given by human beings as well as for beauty, cleanliness, light reflection and the like. Floors, more than any other surface, really need protection against the hammering of heels, unless they are completely carpeted. If the floor is of new wood it should be machine sanded first, followed with at least two applications of floor sealer and waxed; or, varnished two or three coats. The only maintenance necessary from this point on would be washing and, on occasion, rewaxing. Floors with a satin or dull finish have more beauty than with a glossy finish. Ceilings and walls, whether plaster or drywall construction (sheetrock), should be painted or papered with a thought of applying a lovely color that would give a smooth and eye-pleasing quality. If painted, a flat paint of the "alkyd" type should be used with careful consideration in choosing colors that will give pleasing, inviting and harmonious surroundings. Should you wish to paper walls that have been previously painted, all that is necessary is to wash and prepare them first before papering. However, if the walls are papered and you should wish to paint them, it is a good practice to remove the paper first, then wash thoroughly and prepare before painting. In painting woodwork that has been previously painted, it is always good practice to wash thoroughly first, prepare (sandpapering, puttying up holes and cracks and touching up bare and worn spots), then apply an enamel as a last coat (gloss, semi-



gloss, eggshell, satin or dull finish). In most cases, a finish such as a low semi-gloss or eggshell gives the most pleasing finish. For many years now, it has been a desire of people to paint the woodwork the same color as the walls or to match the background of the wallpaper. In areas such as kitchens and bathrooms that are to have the ceilings and walls painted, it is best to use the same type of material (enamel) that has been mentioned above for woodwork.

In closing, it may be said that a painted surface—ceiling, wall or woodwork—may last a long time if properly cared for and washed properly. An important step in washing is not to use the soap solution too strong and to rinse after washing with a soap solution. To repeat, paint is of tremendous value from the standpoint of protection, beauty, cleanliness, light reflection, safety and health.

M. WALTER SIME

## THE HISTORY OF GLASS CONTAINERS

Glass, like sunshine, is such a basic part of everyday life that we never give it a thought. But without glass—as without sunshine—it would be a dark and barren world. There would be no window panes or electric light bulbs, no microscopes or thermometers, no mirrors or eyeglasses, no cameras, television or hundreds of other things which contribute either to the preservation or enjoyment of life.

And without glass, there would, of course, be no glass jars or bottles. Made by the billion in America today, glass containers bring us an almost endless list of foods, beverages, medicines, toiletries and household products, which we could not do without. Produced in every shape and color, and ranging in size from the tiniest medicine bottle to giant demijohns holding many gallons, these durable, transparent and attractive bottles and jars have a rich and romantic history stretching back for thousands of years.

Just when and where the first "man-made" glass was produced has never been determined. One ancient legend credits a group of Phoenician sailors with making the world's first glass. The story goes that the Phoenicians beached their boat on the sandy shores of a tidal river. Finding no rocks on which to rest their cooking pots, they

used lumps of natron—a crude soda ash-cleansing agent—from the ship's cargo. Fanned by sea breezes, their camp fire blazed hot. When it died the sailors found in the ashes a shiny substance which became hard when it cooled. Since two of the basic ingredients of glass are sand and soda ash, this may have been how one of man's greatest gifts—glass—was accidentally discovered. Actually, nobody knows.

It is known, however, that many thousand years before the birth of Christ, Egyptians, and possibly some of their neighbors, were producing glass which they used to glaze or coat small stones to make beads. The world's first glass containers were made in Egypt some four thousand years ago by an extremely slow and laborious process. Using metal rods, Egyptian glassmakers pulled glass threads from a cauldron of molten glass and painstakingly wound the strands around a mold formed of sand. After the glass had hardened, the sand was scraped away to leave a hollow container.

Ancient craftsmen continued to make glass jars and bottles in this slow and tedious way for hundreds of years. Finally, however, the blowpipe—a long hollow metal tube with a bell-shaped end, was invented about 300 B.C. Blowers dipped the end of the blowpipe into a molten batch, gathered up a small gob of glowing glass, and formed it into rough shape on a marble slab. Then, blowpipe to lips, the glassmaker raised the pipe about his head, twirling the glass through the air in circles to create the shape he had in mind by centrifugal force. This free-blown method obviously required great skill—as well as time and lung power! Molds were the next milestone in the long and slow evolution of glass containers. This combination of blowpipe and mold made it possible to produce more uniform and more decorative bottles, jars, flasks and other hollow ware in a fraction of the former time.

JOHN M. FOSTER, *President,*  
*Foster-Forbes Glass Company*

## ALCOHOL AND DRIVING

There are more than sixty pathological conditions which have some or all the symptoms of intoxication. Some time ago a police officer reported that he had followed a car for several blocks because the car was weaving. He found that the driver's speech was incoherent, and that he stag-

First in a series of editorials on the subject of glass and glass containers.

Third in a series of editorials on alcoholism.

gered. The driver insisted that he had *not* been drinking, and that if he could have a candy bar, he would be all right. He was given candy and within a few minutes he was perfectly normal. Here was a diabetic person who had had an overdose of insulin. Thus it is possible that an innocent person may be accused.

To provide definite evidence, chemical tests should be given.

The standards for indicating degrees of intoxication are usually expressed in terms of percentage of alcohol in the blood.

When alcohol is taken, it passes unchanged into the blood stream which carries it to all parts of the body in direct proportion to the water content of the tissue or organ. It is the effect upon the brain that produces the symptoms of intoxication.

Blood alcohol level:

- .02%-.20%—Stage of euphoria.
- .12%-.28%—Stage of incoordination. There is no doubt that above .15% the person is under the influence of an intoxicant.
- .24%-.40%—Stage of confusion. The man is drunk.
- .32%-.50%—Stage of complete anesthesia. Sometimes the individual will "pass out."
- .50% or over—Stage of grave danger. The individual is in danger of death.

*The American Medical Association has agreed upon standard figures as a guide to legal procedure. In some places these have been written into law. If a person has .15 per cent or more alcohol in the blood, he is unquestionably under the influence of liquor.*

PAUL S. RAHNEFF  
Citizens Commission on  
Alcoholism, Inc. of Minnesota.

## THE TREATMENT OF TUBERCULOSIS TODAY

Popular belief to the contrary, tuberculosis is not yet headed for extinction. In fact, after years of watching the steady decline in deaths from this cause, we now reach the paradoxical position of treating about the same number of patients that we were treating several decades ago. The discrepancy is more apparent than real, of course, the high prevailing incidence merely reflecting the survival nowadays of chronic cases whose disease would have proved fatal in the pre-streptomycin era. Then, too, there is the added factor of vastly improved case finding. The important thing is

that tuberculosis still constitutes a problem of no small magnitude.

Even so, there can be no questioning the claim that there has occurred more progress in the treatment of tuberculosis since 1947, the year that streptomycin became generally available, than in all previous years put together. There remain many unsolved problems, it is true, but much of the early controversy about chemotherapy has been resolved and there now exists some unanimity of opinion as to how the average fresh case of tuberculosis should be managed.

In the initial studies of streptomycin, it soon became apparent that the tubercle bacillus rather promptly grew resistant to streptomycin given alone. Quite opportunely, it was discovered that the combination of streptomycin and para-aminosalicylic acid (PAS) significantly delayed the development of bacterial resistance. Still later, it was found that twice weekly streptomycin administration was no less effective than a daily schedule, with the added advantage of further prolonging bacterial sensitivity to streptomycin though lessening the hazard of cumulative toxicity.

Isoniazid, since its availability in 1952, has earned a place alongside streptomycin and PAS. As with streptomycin, bacterial resistance invariably attends the administration of isoniazid alone, but is considerably delayed by giving streptomycin or PAS concomitantly. Current belief is that all three possible combinations of drugs, namely, streptomycin and PAS, isoniazid and PAS, and streptomycin and isoniazid are equally effective. The use of all three drugs at once seems to provide no additional benefit and is best avoided. Because of the possibility that isoniazid-pyrazinamide combination may prove to be equally if not more effective, it might be wise in the average virgin case to defer the use of isoniazid, in the event a second course of therapy should ever be necessary. This would not apply in cases of miliary or meningeal tuberculosis, where isoniazid is particularly efficacious.

The accepted dosages are: streptomycin, 1 gram intramuscularly twice weekly; PAS, 12 grams orally daily in three divided doses; isoniazid, 300 mg. orally daily in three divided doses. As yet, neither pyrazinamide nor cycloserine can be advocated because of the unresolved question of toxicity.

Ideally, treatment should be instituted early, a few weeks sometimes making a big difference be-

cause of the necrotizing nature of the infection. Treatment should be continuous, for interrupted therapy tends to increase bacterial resistance. Treatment must be prolonged or reactivation may ensue. For practical purposes, it can be said that chemotherapy should be continued for at least six months after all lesions can be classed inactive, that is, six months after serial x-rays indicate stability, planigrams show closure of all cavities and the sputum is consistently negative for tubercle bacilli.

Other measures deserve comment. Bed rest, once the keystone of antituberculous therapy, should be used with prudence. Certainly, in the acute phase of the disease complete rest is indispensable, leading to a reduction in fever, cough and expectoration. Conversely, once symptoms subside, an overly rigid attitude toward bed rest may promote discontent without contributing significantly to treatment. At the opposite extreme, the so-called ambulatory treatment of the tuberculous patient, while reducing the disability period and hospital expense, may also reduce the chance for cure.

Collapse measures, such as pneumothorax, pneumoperitoneum and phrenic nerve crush, seem to have a steadily diminishing value, being at this time of more historical than practical importance. Thoracoplasty is still a good operation with a high rate of cavity closure in selected cases. In general, however, outside of chemotherapy excisional surgery stands out as perhaps the most important ancillary measure in the treatment of the disease. By resecting diseased tissue, especially cavitary disease, permanent arrest of the infection may be assured. In essence, surgery is utilized for any dangerous residua of chemotherapy.

As emphasized elsewhere, "the secret to the successful management of the patient with pulmonary tuberculosis lies not in any one drug, nor in any one surgical feat, nor in any one therapeutic dictum, but in the carefully planned and integrated use of all these many measures under the joint supervision of the internist, bacteriologist and surgeon working with the closest possible co-ordination."<sup>†</sup>

J. WINTHROP PEABODY, SR., M.D.

<sup>†</sup>Peabody, J. W., Sr., Katz, S., Davis, E. W., and Peabody, J. W., Jr.: Current concepts in the management of pulmonary tuberculosis. *J. Am. Ger. Soc.*, 3:566 (Aug.) 1955.

## READER INTEREST POLL

At this year's Minnesota State Medical Association's meeting in Rochester, MINNESOTA MEDICINE will have a booth devoted to a *Reader Interest Poll*. The purpose of the poll is to learn how this journal can improve its service to its readers. MINNESOTA MEDICINE is your journal, so you have a strong motive to seek out this booth and let us have five minutes of your time to record your opinions about the journal.

The poll will be conducted by professional pollsters from the Department of Journalism of the University of Minnesota and will cost you money . . . even if indirectly. That gives you an additional motive to visit the polling booth; i.e., to make sure that you are getting your money's worth.

Give us the benefit of your opinions at the Rochester meeting.

## ELECTROLYTE DISTURBANCES IN DEHYDRATION

(Continued from Page 293)

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The importance of environmental factors upon morbidity and mortality of tuberculosis has long been recognized. In a disease where the invasive powers of the agent are in such delicate balance with resistance of the host, factors which substantially augment the virulence of the causative organisms or depress the resistance of the host logically will determine the trends of the disease.—ALTON S. POPE, M.D., and JOHN E. GORDON, M.D., *American Journal of Medical Sciences*, September, 1955.

# President's Letter

## A TRIBUTE TO ORGANIZED MEDICINE

A few days hence we shall be gathering at Rochester for the 103rd Annual Meeting of the Minnesota State Medical Association.

To most of us this is primarily a scientific meeting, providing an opportunity to bring ourselves up to date on medical knowledge and equipment, but the meeting also provides some 100 commercial exhibits where you can see and study the latest in equipment, drugs and techniques. For your relaxation, there are special society luncheons and dinners and the usual assortment of sports events on the Sunday preceding the meeting.

This is what the annual meeting means to most of us. We have splendid meetings, and Minnesota can justly be proud of their caliber. But I wonder whether we ever give much thought to another side of our annual meeting.

Have we ever realized and appreciated the months of organization and preparation that the committee on local arrangements of the host city must engage in so that everything runs smoothly? Do we ever think of the effort put forth by Executive Secretary Rosell and his staff in providing the exhibits which are so vital to the financial success or failure of such a meeting?

Do we realize how much easier it makes the job of selling exhibition space if we stop to register with the exhibitors?

Do you realize that the Council and officers of the Association arrive on the scene the Saturday preceding the meeting; that from then until the close of the session they are in almost continuous session, usually starting with a 7 a.m. breakfast?

Do you appreciate the fact that the reference committees meet at 10 a.m. on the Sunday preceding the meeting?

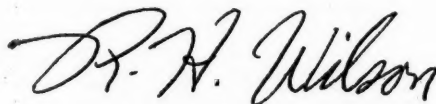
To the House of Delegates, the annual meeting means two long sessions on Sunday preceding the meeting and another one on Monday, and, believe me, those chairs get harder and harder!

Do you set aside time at your succeeding component society meeting for your delegate to make a report so that you may be kept informed on current problems, or do you make him fight for a few minutes' time? I was a delegate for fifteen years from my component society and I am embarrassed to state how few times I was asked or given the opportunity to make a report.

So much for the annual meeting. There is much more to organized medicine in Minnesota and every other state. Do you know that there are twenty-three state scientific committees with a total of 239 devoted men serving on them, giving freely of their time and knowledge that the people of Minnesota might have better health?

In addition, there are approximately twenty-five non-scientific committees with a total of 190 members. These committees are concerned with editing and publishing our journal, with medical economics, medical relations, malpractice insurance, physicians' assistance, and numerous other phases of organized medicine. Mention must also be made of the fine group of men who over the years have given so generously of their time and talents in representing us as delegates to the two annual meetings of the American Medical Association and meetings of national committees on which they serve.

This letter is not meant to be critical, but rather as a tribute and expression of appreciation of the time and talents all of these members have so graciously and devotedly given to the cause of organized medicine. Their only reward is the satisfaction of a most worthy job well done.



President, Minnesota State Medical Association



# Medical Economics

Edited by the  
Committee on Medical Economics,  
Minnesota State Medical Association  
George Earl, M.D., Chairman

## ADMINISTRATION OPPOSES DISABILITY PAYMENTS UNDER SOCIAL SECURITY

The Eisenhower administration is firmly opposed to two major provisions of the House-approved social security amendments (H. R. 7225, summarized in the January, 1956, section on "Medical Economics"). These provisions are the lowering of the retirement age for women, from sixty-five to sixty-two and cash payments to disabled workers at age fifty. The position was set forth March 22 by HEW Secretary Folsom, the 101st and final witness to appear before the Senate Finance Committee since last January.

Folsom said that the medical testimony presented on the difficult problem of determining eligibility for disability payments, in his judgment, was very convincing.

He also stated:

"The nation has already made significant progress in recent years in helping the disabled. About 244,000 needy disabled persons are now receiving payments of \$165 million annually. Under the present system, cash payments are made only upon death or retirement. These conditions are easy to determine.

"Under the disability proposal, however, the primary condition for payment would be 'inability to engage in any substantial gainful activity, or mental impairment which can be expected to result in death or to be of long continued and indefinite duration.' These conditions are much more difficult to determine.

"... Numerous medical witnesses have testified to this committee as to the great problems which they foresee in evaluating physical and mental conditions for purposes of disability determinations. I believe the testimony of so many medical experts as to the problems involved in determining disability must be given considerable weight."

## Difficulties in Controlling Cost

Folsom went on to discuss the uncertainties of the cost of such a program. He pointed out that the "cost estimates for disability are subject to a far wider range of variation than for other types of benefits."

"It would also be possible," he added, "that the age limit of 50 could be lowered and that cash disability benefits at any age would cost social security taxpayers almost \$1½ billion a year by 1980."

## Relationship to Vocational Rehabilitation

In discussing the relationship of cash disability benefits to vocational rehabilitation, Folsom said he believed that the latter was the most constructive approach to disability. He added:

"Witnesses have testified that cash benefits may reduce the incentive of some disabled persons toward rehabilitation—particularly if the benefits, when combined with other resources, adequately meet essential needs.

"Our own experience with the rehabilitation process," he said, "indicates that the drive and willpower of the individual is the most important single factor in determining his chances of successful rehabilitation. The committee is faced with a proposal for legislation in a delicate area of human motivation. It is impossible to proceed with the same degree of assurance that has accompanied other steps in the expansion of the social security system."

Summarizing his objections Folsom said:

"There is a great divergence of opinion on the difficulties of administering a cash disability program, our ability to control the costs and the effects on vocational rehabilitation. On the other hand, we are making significant progress in helping disabled people—through assistance payments to the needy, the rehabilitation program and the disability freeze. We need more time to develop these programs fully and to evaluate their results."

## Opposition to Lowering Retirement Age for Women

Referring to the section in the bill lowering the retirement age for women, Mr. Folsom noted that this would cost about \$400 million the first full year and more than \$1 billion annually by 1970. The proposal has been considered carefully several times in the past twenty years, but "Congress has always concluded that any overall values of a lower retirement age were outweighed by the heavy cost. And there has been a serious question as to the logic of a discrimination in retirement age between women and men."

## Writing Your Congressman

Physicians are urged to continue writing thoughtful letters to their congressmen on their objections to H.R. 7225, although it is believed the Senate Finance Committee will go slow on Social Security revisions and that floor action will not come until midsummer.

On this and other issues, doctors have had a number of reasons in recent years to take special interest in their congressmen. The health question has certainly made taxes and defense, for example, items of conversation, and congressional study of almost secondary political importance. Physicians throughout the nation should express themselves from time to time on matters that concern them and their patients. As a practitioner, he has a right, too, to demand things that best enable him to practice the type of medicine for which he has trained and devoted himself.

The Hoover Report Division of the Taxpayers' Federation of Illinois has issued a small pamphlet in which are suggested certain rules for writing your congressman if the letters are to have the most effect:

1. Write on a specific issue or principle, and do not try to cover more than one in a letter.
2. Be brief. Tell your point of view and your reasons.
3. Do not follow a form letter. Give your own ideas in your own way. It is the straightforward, sincere letter that commands attention.
4. Be friendly and courteous. Do not be abusive.
5. Do not use carbon copies. Write to each one individually.
6. Write a "thank you" note when one of these men does something you like. They are often criticized, seldom praised.
7. Be sure to sign your letter legibly and give your address.

#### ARE DOCTORS GOOD BUSINESSMEN?

The 1955 study on "What Americans Think of the Medical Profession" reveals that over 50 per cent of the general physicians polled believe that they themselves are not good businessmen. Fifty-two per cent of the internal medical specialists, 54 per cent of the surgeons and 58 per cent of other specialists agreed.

On the other hand, only 10 per cent of the men in the lay group surveyed said they believe it was "true" that doctors were poor businessmen. Eight per cent said it was "possibly true"; 38 per cent said "false," and 10 per cent said it was "probably false."

A total of 81 per cent of physicians believe they are poor businessmen; 13 per cent disagreed, and 6 per cent had no opinion.

Of the general public questioned, a total of

17 per cent believed doctors are not good businessmen; 48 per cent disagreed. The remaining had no opinion.

Reasons the overwhelming majority of physicians gave for believing they are not good businessmen were listed in this order: "They are too busy; they stay out of business because they become 'easy marks'; they are not trained in business; too many collections, poor records and poor management; they are interested only in medicine; it takes too much experience and observation; they don't think about money; they're too softhearted and don't always charge; most of them are not wealthy; they leave small estates and many debts; they let others handle their business; they are not business-like with patients."

The doctors who believed they *are* good businessmen gave these reasons for their opinions: "they have investments; they live well and are successful; the manner in which most keep collections and records is good; they are intelligent and educated; they make money and generally have good incomes; they have good personal knowledge."

Those laymen who believe doctors are poor businessmen gave these reasons for their answers: "doctors are too busy, too interested in medicine only; they are weak managers and have poor records; they are not trained in business; they let others handle their business; they are not business-like with patients; they are soft-hearted and don't charge; they don't think much about money."

The 48 per cent of the general public who believe physicians *are* good businessmen say they have this idea because "doctors live well and are successful; they are intelligent, capable and educated; they make money and have big incomes; they are businesslike in their billing and collecting; they have investments and many material possessions; they are busy and have many patients and they charge high fees."

#### WHAT DO DOCTORS THINK OF SOCIAL SECURITY?

In state surveys made in various parts of the country, the number of doctors who believe in compulsory social security for the profession is less than 10 per cent.

The largest poll tabulated up to February was that taken by the Ohio State Medical Association. Ballots were sent to 8,360 members. The main question was: "Do you favor extension of Old

Age and Survivors' Benefits coverage of the Federal Social Security Program to Physicians?" The ballot was accompanied by material prepared by the affirmative and negative sides. There were 4,912 ballots returned (about 60 per cent). Of these, twelve could not be tabulated because of irregularity of answers. Of the remaining 4,900, nearly one-half, 2,441, voted "no," indicating that they did not want social security under any circumstance.

Of the 2,459 favoring some form of coverage, 2,070 said they wanted it on a voluntary basis. Only 370 were in favor of compulsory coverage.

In Indiana, on the basis of 2,333 replies to 3,613 questionnaires sent out by the Indiana State Medical Association, there were 703 doctors who were for some form of social security. Of these, 579 gave their assent to such coverage, provided it was voluntary. Only ninety-one wanted a compulsory program.

The Rhode Island Medical Society and Providence Medical Association polled 800 members. Usable returns were received from 450. Opposition to any form of social security totaled 152. Those favoring a voluntary system numbered 264. Only thirty-four voted for a compulsory program.

The Arkansas Medical Society sent out about 1,200 questionnaires and to the end of January had 836 usable replies. There were 785 votes against a compulsory program. Of these, 411 doctors were agreeable to a voluntary coverage, but 374 wanted no part of social security. The proponents of a compulsory plan numbered fifty-one.

The AMA has consistently opposed the inclusion of physicians in any social security program on a compulsory basis. It has stated that it will not oppose an amendment permitting voluntary participation.

A poll of Minnesota physicians is now being conducted on the same subject. It is believed that the survey will probably confirm the findings in other states.

#### CATASTROPHIC HEALTH INSURANCE FOR FEDERAL EMPLOYEES

The administration is about ready to present to Congress its program for major medical cost insurance for the 2,000,000 U. S. civilian employees and their 2,500,000 dependents. All U. S. employees and dependents who are participating in the two-year-old federal group life insurance program would receive this catastrophic health

insurance protection at no cost to themselves. The entire cost—about \$32½ million annually—would be paid by the United States.

To varying degrees, hospital, surgical and medical care costs would be covered. The major medical care benefits, however, would not apply until \$500 of hospital costs were paid annually by the employee. After that the United States policy would meet 75 per cent of the cost. The employee would be reimbursed for 75 per cent of all surgical costs after he had paid the first \$250. He would be expected annually to stand the first \$100 and would be reimbursed for 75 per cent of the remainder. The assumption is that in most cases the employee would protect himself against these initial payments by purchase of basic health insurance.

#### MEDICAL LIBRARY BILL

Senator Hill, (D., Ala.), with Senator Kennedy, (D., Mass.), as co-sponsor, has introduced a bill taking the Armed Forces Medical Library from under the Defense Department and setting it up as a separate entity with the name of "National Library of Medicine." They left open the question of whether to place it under the Smithsonian Institution as recommended by the Hoover Commission or under some other agency such as the Department of HEW. One of the points cited by Senator Hill for the bill is that the present library, with its wealth of material, provides considerable information for civilian medical science. Senator Kennedy stressed that the library cannot compete for funds in the Defense Department against the needs and demands of national defense. The bill has been referred to the Senate Labor and Public Welfare Committee, which has no immediate plans for hearings.

The AMA's House of Delegates in June, 1954, urged a new building for the present library and called on the government to give it "immediate priority."

#### SOME DOCTORS MISS THIS TREAT

The 75 per cent of doctors in general practice who disagreed with the statement, "Compared with their patients, most doctors make too much money" in the poll, "What Americans Think of the Medical Profession," last year apparently agree with the statement that "wealthy doctors, like all wealthy people, miss one of the greatest thrills in life—paying off that last installment!"

# The Dean's Page

## LEADERSHIP IN MEDICINE

A recent issue of the new *University of Minnesota Medical Bulletin* points out some interesting information concerning alumni of our Medical School. From time to time, the *Bulletin* carries news items concerning our alumni. It has been apparent from these news items that a good many of our alumni occupy positions of importance medically in many parts of this country. It has been particularly impressive, however, to note the manner in which our graduates have become active leaders of medicine in Minnesota.

At the present time, the President, the immediate Past President, both Vice Presidents, the Secretary, the Treasurer, the Speaker of the House of Delegates, and the Chairman of the Council of the Minnesota State Medical Association are alumni of our Medical School. All of the newly installed officers, as well as the out-going president, and the new directors of the Minnesota Academy of General Practice also graduated from Minnesota, as did the new officers of the Southern Minnesota Medical Association and the incoming and retiring presidents of the Northern Minnesota Medical Association. Our alumni have been instrumental in the development and activities of a number of other important medical organizations in this state.

Our entire faculty takes justifiable pride in this record. We believe that it shows that our alumni have not only practiced an excellent brand of medicine but that, in addition, they have assumed their share or more of leadership in the medical community.

HAROLD S. DIEHL, *Dean*  
*University of Minnesota Medical School*



# In Memoriam

## GUSTAF A. HEDBERG

Dr. Gustaf A. Hedberg, medical director of Nopeming Sanatorium, Nopeming, Minnesota, died March 27, 1956, at Tallahassee, Florida. He was forty-nine years old.

An authority on tuberculosis treatment and control, he was awarded the 1955 Dearholt medal for outstanding service in tuberculosis control at the Mississippi Valley Conference on tuberculosis last October.

He is credited with originating the first mobile x-ray unit for tuberculosis survey in 1943. He is also credited with using new drugs to shorten tuberculosis treatment.

Dr. Hedberg joined the Nopeming staff shortly after he received his medical degree from the University of Minnesota in 1930.

He was a member of the St. Louis County Medical Society, the Minnesota State Medical Association, the American Medical Association, the National Tuberculosis Association, the American Sanatorium Association, the Minnesota Trudeau Society and the Duluth Society of Internal Medicine.

Survivors include his wife, Iris; two daughters, Susan and Karen, both of Nopeming; two sisters, Mrs. Carl Blad, Saint Paul Park, and Mrs. John E. Ross, Minneapolis, and a brother, Robert, El Sobrante, California.

## HENRY N. KLEIN

Dr. Henry N. Klein, former chief of staff of Saint Joseph's Hospital, Saint Paul, died April 16, 1956, after a long illness.

Dr. Klein practiced medicine for fifty years and served on the staffs of Saint John's, Ancker, Miller and Saint Luke's Hospitals and the Wilder Dispensary.

He was graduated from the University of Minnesota Medical School and held membership in the Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association.

A member of the University Club and a veteran of both the Spanish-American War and World War I, Dr. Klein also served as head of the dermatology department at the Wilder Dispensary.

Survivors include his wife, Josephine E.; a son, Richard E., and three grandchildren, all of Saint Paul.

## SCOTT G. LARRABEE

Dr. Scott G. Larrabee, a Saint Paul eye, ear, nose and throat specialist for thirty-three years, died April 2, 1956. He was seventy-one years old.

Born in Scarboro, Maine, he was a graduate of Bowdoin University in his home state. Dr. Larrabee lived at 1880 Iglehart Avenue, Saint Paul.

Survivors include his wife, Nellie; a daughter, Mrs. George T. Hammond, and three grandchildren, all of Saint Paul, and two brothers, Alvin, Detroit, Michigan, and Ralph, who still lives in Maine.

## HENRY H. LEAVITT

Dr. Henry H. Leavitt, a Minneapolis physician fifty-eight years, died March 18, 1956. He was ninety-four years old.

A native of Waterloo, Iowa, he was the oldest living graduate of Beloit College, Beloit, Wisconsin. He also graduated from Chicago Homeopathic Medical College, came to Minneapolis in 1890 and taught medicine at the University of Minnesota before entering private practice. He retired in 1948. During his retirement, he lived in Phoenix, Arizona, until 1954.

Dr. Leavitt was a general practitioner for many years before specializing in eye, ear, nose and throat medicine.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Survivors include three daughters: Mrs. R. M. Bell and Mrs. N. S. Mitchell, Minneapolis, and Mrs. M. N. Clark, Oakland, California. Mrs. Leavitt died in 1954.

## JOSEPH A. LEBROWSKE

Dr. Joseph A. Lebrowske, pioneer Minneapolis physician, died April 1, 1956. He was seventy-five years old.

Born in Russia, Dr. Lebrowske received his early education in Minneapolis and graduated from the Minneapolis College of Physicians and Surgeons, formerly affiliated with Hamline University.

The Hennepin County Medical Society, of which Dr. Lebrowske was a member, recently honored him for fifty years of service. He was also a member of the Minnesota State Medical Association, the American Medical Association, the Keneseth Israel Synagogue and the Woodmen of the World.

Survivors include his wife, Florence; two sons, Bernard, Westport, Connecticut, and Harold, Saint Paul; four daughters, Mrs. David Smith, Los Angeles, California, and Mrs. Martin Yavitz, Mrs. Samuel Held and Mrs. Wilbur Jansen, Minneapolis; and two sisters, Mrs. Ida Hoffman, Minneapolis, and Mrs. Israel Lazarus, Milwaukee, Wisconsin.

## FLETCHER W. PENHALL

Dr. Fletcher W. Penhall, a pioneer physician in Morton, Minnesota, died April 2, 1956, at Redwood Falls. He was ninety-three years old.

One of Minnesota's oldest practicing physicians, he retired a year ago after serving the people of Morton for fifty-three years.

Dr. Penhall set up practice in Morton in 1891 after graduating from Bellevue Medical Center in New York. He was born in Brooklin, Ontario, Canada, and took his first medical training at Trinity Medical College, Toronto.

A member of the staff at Willmar State Hospital, Dr. Penhall also served on the Morton Village Council for three years and on the Board of Education for fifteen

## IN MEMORIAM

years. He was a former president of the Camp Release Medical Society, a member of the Renville-Redwood County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Survivors include four daughters: Mrs. John Allen, Mrs. Glenden Judd and Lillith Penhall, Minneapolis, and Mrs. Irving Eustis, Florida. Two other daughters preceded him in death. Lillian, died in 1899, and Jessie, in 1952. Mrs. Penhall died in 1942.

### IVAR SIVERTSEN

Dr. Ivar Sivertsen, a Minneapolis physician and surgeon for fifty-one years, died March 17, 1956. He was seventy-nine years old.

Born in Christiansund, Norway, Dr. Sivertsen graduated from Hamline University medical school in 1904. After internship in St. Joseph's Hospital, Saint Paul, he continued his medical studies in Vienna, Austria.

He later taught obstetrics and gynecology at the University of Minnesota.

Dr. Sivertsen retired from medical practice last July. He was one of the original staff members of Fairview Hospital. Earlier this year, he retired from the State Board of Medical Examiners, to which he had been appointed in 1931.

He was also a founder of Central Lutheran church, a charter member of the Minneapolis Club and a Shriner. He served as an army captain during World War I.

A member of the founders' group of the American Board of Surgery, Dr. Sivertsen was also a fellow of the American College of Surgeons, a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Survivors include his wife, Maybelle; two sons, Ivar, Jr., San Jose, California, and John W., Akron, Ohio; three daughters, Wilma Clare, New York, and Anne and Mrs. Margaret Larson, both of Minneapolis, and two brothers, Dr. Andrew and John A., both of Minneapolis.

### JOHN E. SOPER

Dr. John E. Soper, Minneapolis, died March 24, 1956. He was eighty-nine years old.

Dr. Soper, a University of Minnesota graduate, was captain of the 151st Field Artillery medical corps in World War I. He was chairman of the National Cemetery Association; chairman of Soldiers Home Committee; national vice president of Rainbow Division Association; Spanish War Veterans, and Sons of Union Veterans. He was also active in American Legion, DAV and VFW activities and was a past exalted ruler of Elk Lodge 44 and a member of Lynnhurst Masonic Lodge.

He practiced medicine in Norwood and Delano, Minnesota, for twenty-one years and served as mayor of Norwood and as Carver County coroner.

Surviving is his wife, Mildred E. Soper.

### GREGORY VAN BEECK

Dr. Gregory Van Beeck, a native of Hastings, Minnesota, died March 13, 1956, in Big Springs, Texas. He was sixty-five years old.

Dr. Van Beeck graduated from the University of Minnesota medical school and practiced for two years at Mazeppa, Minnesota. He later entered the United States Public Health Service and was assigned to posts all over the United States, Europe and Central America.

Eight months ago, he resigned his position as medical director of the Public Health Service.

Funeral services were held in Hastings, March 19.

Survivors include his wife, Margaret; a brother, Clemens, and a cousin, Mrs. Nick Conzemius, both of Hastings.

### HENRY JOURNEY WELLES

Dr. H. Journey Welles, former deputy coroner of Hennepin County, died February 26, 1956, in Minneapolis. He was eighty years old.

Dr. Welles was deputy coroner from 1943 to 1953.

A 1901 graduate of the University of Minnesota medical school, he practiced medicine in Minneapolis fifty-five years. He was a member of the Hennepin County Medical Society and the Minnesota State Medical Association.

Dr. Welles was a past president of Zuhrah Shrine patrol and a member of Alpha Delta Phi and Phi Beta Pi fraternities.

Survivors include his wife, Bess, and a daughter, Betty.

### WILLIAM E. WRAY

Dr. William E. Wray, physician at Campbell, Minnesota, for forty-four years, died February 26, 1956, in Breckenridge. He was seventy-seven years old.

He was a graduate of the University of Illinois medical school, class of 1897. After graduation, Dr. Wray served one year in the medical corps of the U. S. Army during the Spanish-American War. During World War I, he served as a major in the 155th Coast Artillery.

A member of the staff of St. Francis Hospital, Breckenridge, and the Lake Region Hospital, Fergus Falls, he also served as civil defense chairman for his community and as a member of the Red Cross board. He was a member of the Campbell school board for many years, a member of the Masonic Lodge of Campbell, the VFW, and the American Legion.

Dr. Wray belonged to the Park Region District and County Medical Society, the Minnesota State Medical Association and the American Medical Association.

In 1947, staff members of St. Francis Hospital, Breckenridge, and their wives honored Dr. Wray at a banquet on the occasion of his completion of fifty years of medical service.

Survivors include his daughter, Dorothy; his sister, Mrs. R. S. Cheney, Kerrville, Texas; and his brother, Edward, Evanston, Illinois. A son, William Edgar, preceded him in death in 1922 and Mrs. Wray died January 15, 1956.

# Meetings and Announcements

## MEDICAL MEETINGS

### State

MINNESOTA STATE MEDICAL ASSOCIATION, annual meeting, Mayo Civic Auditorium, Rochester, May 21-23, 1956.

Minnesota Society of Obstetrics and Gynecology, fall meeting, Rochester, Minnesota, September 22. Dr. Edward A. Banner, secretary, Rochester, Minnesota.

Northwest Pediatric Society, spring meeting, Rochester, May 22, in conjunction with meeting of Minnesota State Medical Association. Secretary, Dr. T. C. Papermaster, Minneapolis.

### National

American Association of Blood Banks, ninth annual meeting, Somerset Hotel, Boston, Massachusetts, September 3-5. Secretary Marjorie Saunders, 725 Doctors Building, 3707 Gaston Ave., Dallas, Texas.

American Cancer Society and National Cancer Institute, Third National Cancer Conference, Sheraton-Cadillac Hotel, Detroit, Michigan, June 4-6. Write National Cancer Conferences Coordinator, American Cancer Society, 521 West 57th Street, New York 19, New York.

American Ophthalmological Society, Hot Springs, Virginia, May 31 to June 2.

Medical Library Association, fifty-fifth annual meeting, Hotel Statler, Los Angeles, California, June 18-22. Write Mrs. Ella Crandall, Librarian, Los Angeles, County General Hospital, 1200 North State Street, Los Angeles 33, California.

Microbiological Institute, ninth annual meeting, Department of Biological Sciences, Purdue University, Lafayette, Indiana, June 4-9. Write Division of Adult Education, Engineering Administration Building, Purdue University, Lafayette, Indiana.

Minnesota-Dakota-Manitoba Orthopedic Society, annual meeting, Red Wing, Minnesota, September 7 and 8. Dr. Hollis Ahlrich, secretary, Rapid City, South Dakota.

Symposium for General Practitioners on Tuberculosis and Other Chronic Pulmonary Diseases, fifth annual meeting, Saranac Lake, New York, July 7-13. Dr. Edward N. Packard, general chairman, Symposium for General Practitioners, P.O. Box 262, Saranac Lake, New York.

Third National Cancer Conference, Detroit, Michigan, June 4-6.

West Virginia State Medical Association, 89th annual meeting, The Greenbrier, White Sulphur Springs, West Virginia, August 23-25.

MAY, 1956

### International

Canadian Medical Association, Quebec, P.Q., Canada, June 10-14. Dr. Arthur D. Kelly, secretary, 150 St. George St., Toronto 5., Ontario, Canada.

Congress of International Society of Hematology, Hotel Somerset, Boston, Massachusetts, August 27-September 1. Dr. W. C. Moloney, secretary, 39 Bay State Road, Boston, Massachusetts.

European Congress of Cardiology, Stockholm, Sweden, September 10-14. Dr. Karl E. Grewin, secretary, Soder sjukhuset, Stockholm, Sweden.

Inter-American Congress of Cardiology, Havana, Cuba, November 4-10. Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International College of Surgeons, European meetings: Paris, May 10; Nantes, May 14; Berne, May 17; Rome, May 23; Vienna, May 30.

International Congress of Clinical Chemistry, Hotel New Yorker, New York, September 9-14. Secretary, John G. Reinhold, 711 Maloney Building, University of Pennsylvania, Philadelphia 4, Pennsylvania.

International Congress of Gastroenterology, London, England, July 18-21. Herman Taylor, secretary, London Hospital, White Chapel, London E. 1, England.

International Congress of Internal Medicine, Madrid, Spain, September 19-23. Dr. J. C. DeOya, secretary, No. 90, Madrid, Spain.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, September 9-13. Dr. Max Thorek, secretary general, 1516 Lake Shore Drive, Chicago, Illinois.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28. Dr. Jose Noriega, secretary, Tepic 126 (2 e piso), Mexico, D. F. 7, Mexico.

International Congress of World Confederation for Physical Therapy, Statler Hotel, New York, New York, June 17-23. Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York.

International Congress on Diseases of the Chest, Cologne, Germany, August 19-23. Murray Kornfeld, executive director, 112 East Chestnut St., Chicago 11, Illinois.

Pan American Congress on Cancer Cytology, Miami, Florida, January 8-12, 1957. Dr. J. Ernest Ayre, chairman, 1155 N. W. 14th St., Miami, Florida.

World Medical Association, Havana, Cuba, October 9-15. Dr. Louis H. Bauer, secretary general, 345 East 46th St., New York 17, New York.

### AMERICAN CANCER SOCIETY FELLOWSHIPS

The American Cancer Society has announced that its program of clinical fellowships, which began in 1948, will continue through the institutional years, July 1, 1957 to June 30, 1958, with fellowships commencing July 1, 1957. Applications for fellowships should be sent to Dr. Brewster S. Miller, American Cancer Society, 521 West 57th Street, New York 19, New York, via the executive officer of the teaching institution.

### AMERICAN COLLEGE OF GASTROENTEROLOGY ANNOUNCES WRITING CONTEST

The American College of Gastroenterology, in cooperation with the Ames Company of Elkhart, Indiana, announces the 1956 Ames Award contest for the best papers in gastroenterology.

For fellows in gastroenterology, residents and internes the first prize will be \$500, with a second prize of \$250. In addition a prize of \$250 will be given for the best paper published in the *American Journal of Gastroenterology* during the year ending June 30. Papers must be submitted before July 15.

For further information, write the American College of Gastroenterology, 33 West 60th Street, New York 23, New York.

### MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

New officers of the Minnesota Academy of Ophthalmology and Otolaryngology for 1956-1957 are Dr. Karl E. Sandt, Minneapolis, president; Dr. John Peterson, Duluth, first vice president; Dr. John Erick, Rochester, second vice president; Dr. Malcolm McCannel, Minneapolis, secretary-treasurer.

Chairman of the council is Dr. George Tangen, Minneapolis, and members of the council include Dr. John Wendland, Dr. Walter Fink, Dr. Sandt and Dr. McCannel, all of Minneapolis; Dr. Frank Adair, St. Paul, and Dr. Hobart Johnson, Mankato.

The organization meets on the second Friday of the month from November to May, alternating between the Minneapolis Club in Minneapolis and the Minnesota Club in St. Paul.

### CAMP COURAGE OPENS IN JUNE

Camp Courage, Minnesota's only camp especially designed for physically handicapped children and adults, opens its second season June 17.

The camp is maintained by the Minnesota Society for Crippled Children and Adults (the Easter Seal Society). Located on Cedar Lake, about four miles northwest of Minneapolis, it offers regular activities as well as speech and physical therapy on recommendation from a physician. A trained occupational therapist administers the arts and crafts program.

The camp is open to all types of physically handicapped children and adults, including those who are blind, deaf or have speech problems. Minimum age is eight. At present, the camp is not accepting children who are mentally retarded or emotionally disturbed. Epileptics, diabetics and enuretics are screened and evaluated on individual merit by an admissions committee upon medical recommendation. No one is ever refused admission because of race, creed, color or inability to pay.

Physicians knowing prospective campers should contact their local Easter Seal chairman or Toy Jambeck, Camp Director, Easter Seal Society, 1639 Hennepin Ave., Minneapolis 3, Minnesota.

## Woman's Auxiliary

### BABY SITTER PROJECT FOR ST. LOUIS COUNTY AUXILIARY

Mrs. L. J. Leonard

A Duluth project which stimulated considerable interest was presented by Mrs. H. E. Bakkila during the Mid-Winter Board meeting in Saint Paul.

The Home Safety Committee of the Duluth Woman's Institute formed a Baby Sitters' Council in 1950 to meet the need to educate baby sitters in safety matters. The St. Louis County Medical Auxiliary was approached with the problem and agreed to participate in the program.

The Auxiliary supplied printed cards, about 8 x 12 inches, in the form of a bulletin which could be tacked on the wall of the home in a conspicuous spot. This card gave these six emergency facts in bold type—with proper telephone numbers and other instructions:

1. Parents' name and address where they could be reached; also where else to get help in emergencies.
2. Serious injury to the baby.
3. Fire.
4. Sudden sickness.
5. Choking.
6. Gas, water or light failure.

These cards were given to all attending the annual Baby Sitters' workshops which have been held since 1950.

From a group of 180 at the first workshop, the number has increased to the point where the last two meetings have been held at the Shrine auditorium. Attending was a capacity-size group of baby sitters and interested adults.

Stunts, movies, door prizes and group singing have been added to the programs to stimulate interest.

By constant repetition of safety rules, the sponsors hope to train more competent and more responsible baby sitters.

Inquiries on the operation of this plan have been received from all over the United States.

Members of the St. Louis County Auxiliary are to be commended for their participation in this program and for their contribution to its success.

### NATIONAL CONVENTION

Mrs. G. E. Harmon, State Auxiliary Publicity Chairman, has received a letter from Margaret Wolf, national Executive Secretary, extending a cordial invitation to Auxiliary members to participate in all social functions and Auxiliary sessions of the national convention, June 11-15, in Chicago. Headquarters will be at the Conrad-Hilton Hotel. Tickets for all functions will be available only at the registration desk. There will be a hospitality room in the Normandy Lounge.

Mrs. Harmon has studied the program and states that it looks very interesting and most worthwhile.



# Minnesota State Medical Association Roster for 1956

## Officers

R. H. WILSON, M.D.	President	Winona
GORDON C. MACRAE, M.D.	First Vice President	Duluth
MANCEL T. MITCHELL, M.D.	Second Vice President	Minneapolis
B. B. SOUSTER, M.D.	Secretary	Saint Paul
W. H. CONDIT, M.D.	Treasurer	Minneapolis
C. G. SHEPPARD, M.D.	Speaker, House of Delegates	Hutchinson
H. M. CARRYER, M.D.	Vice Speaker, House of Delegates	Rochester
R. R. ROSELL	Executive Secretary	Saint Paul

## Councilors

(Terms expire December 31 of year indicated)

### First District

J. M. STICKNEY, M.D. (1956).....Rochester

### Second District

R. C. HUNT, M.D. (1956).....Fairmont

### Third District

P. E. HERMANSON, M.D. (1958).....Hendricks

### Fourth District

H. J. NILSON, M.D. (1957).....North Mankato

### Ninth District

CLARENCE JACOBSON, M.D. (1956).....Chisholm

### Fifth District

L. R. CRITCHFIELD, M.D. (1958).....Saint Paul

### Sixth District

H. B. SWEETSER, M.D. (1957).....Minneapolis

### Seventh District

W. W. WILL, M.D. (1958).....Bertha

### Eighth District

C. L. OPPEGAARD, M.D. (1957) Chairman.....Crookston

## House of Delegates, American Medical Association

### Members

J. ARNOLD BARGEN, M.D. (1956).....Rochester  
O. J. CAMPBELL, M.D. (1957).....Minneapolis  
GEORGE EARL, M.D. (1957).....Saint Paul  
F. J. ELIAS, M.D. (1956).....Duluth

### Alternates

PAUL C. LECK, M.D. (1956).....Austin  
C. L. OPPEGAARD, M.D. (1957).....Crookston  
E. M. HAMMES, Sr., M.D. (1957).....Saint Paul  
A. O. SWENSON, M.D. (1956).....Duluth

## Scientific Committees

### ANESTHESIOLOGY

T. H. SELDON, M.D. ....Rochester  
MARGARET C. ANDERSON, M.D. ....Mankato  
J. W. BAIRD, M.D. ....Minneapolis  
J. H. CROWLEY, M.D. ....Saint Paul  
R. C. GAARD, M.D. ....Minneapolis  
F. C. JACOBSON, M.D. ....Duluth  
ROBERT C. KNUTSON, M.D. ....Saint Paul  
JOHN E. OSBORN, M.D. ....Rochester

### BLOOD AND BLOOD BANKS

J. S. LUNDY, M.D. ....Rochester  
PAUL F. DWAN, M.D. ....Minneapolis  
J. W. EDWARDS, M.D. ....Saint Paul  
E. V. GOLTZ, M.D. ....Saint Paul  
WM. V. KNOLL, M.D. ....Brainerd  
R. W. KOUCKY, M.D. ....Minneapolis  
DONALD J. NOLLETT, M.D. ....Hibbing  
N. C. PLIMPTON, M.D. ....Minneapolis  
HOWARD M. WIKOFF, M.D. ....Crookston

### CANCER

(Three-year appointment)

DAVID P. ANDERSON, Jr., M.D. (1958).....Austin  
P. F. ECKMAN, M.D. (1958).....Duluth  
G. F. HARTNAGEL, M.D. (1956).....Red Wing  
PAUL HEISE, M.D. (1958).....Winona  
C. R. HITCHCOCK, M.D. (1956).....Minneapolis  
N. K. JENSEN, M.D. (1958).....Minneapolis  
LEONARD A. LANG, M.D. (1958).....Minneapolis  
N. LOGAN LEVEN, M.D., (1956).....Saint Paul  
T. B. MAGATH, M.D. (1956).....Rochester  
F. M. OWENS, Jr., M.D. (1958).....Saint Paul  
D. E. STEWART, M.D. (1958).....Crookston

### CHILD HEALTH

G. B. LOGAN, M.D. ....Rochester  
ELDON BERGLUND, M.D. ....Minneapolis  
T. C. CHISHOLM, M.D. ....Minneapolis  
J. J. GALLIGAN, M.D. ....Saint Paul  
O. H. JONES, M.D. ....Mankato

## COMMITTEES

CHARLES W. ROGERS, M.D.	Winona
A. B. ROSENFELD, M.D.	Minneapolis
V. O. WILSON, M.D.	Rochester
EDWARD ZUPANG, M.D.	Duluth

### CONSERVATION OF HEARING

K. M. SIMONTON, M.D.	Rochester
L. R. BOIES, M.D.	Minneapolis
JOHN H. CAMERON, M.D.	Crookston
C. E. CONNOR, M.D.	Saint Paul
J. B. GAIDA, M.D.	St. Cloud
ANDERSON HILDING, M.D.	Duluth
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M. K. PLASHA ..... Anoka  
FRANK MORK ..... Anoka

## BECKER COUNTY

ARNOLD LARSON ..... Detroit Lakes  
ARVID HOUGLUM ..... Lake Park

## BELTRAMI COUNTY

T. P. GROSCHUPF ..... Bemidji  
H. A. PALMER ..... Blackduck  
D. D. WHITEMORE ..... Bemidji

## BIG STONE COUNTY

I. L. OLIVER ..... Graceville  
OTTO BERGAN ..... Clinton  
H. H. HEDEMARK ..... Ortonville

## BLUE EARTH COUNTY

HUGH MORGAN ..... Amboy  
GEORGE PENN ..... Mankato  
P. G. HOEPER ..... Mankato

## BROWN COUNTY

ALBERT FRITSCH ..... New Ulm  
C. A. SAFFERT ..... New Ulm  
O. B. FESENMAIER ..... New Ulm

## CARLTON COUNTY

J. K. BUTLER ..... Cloquet  
R. M. EPPARD ..... Cloquet  
E. O. HANSON ..... Cloquet

## CARVER COUNTY

G. T. SCHIMELPFENIG ..... Chaska  
LEIGHTON LARSON ..... Waconia  
JOHN CLARKE ..... Watertown

## CASS COUNTY

O. F. RINGLE ..... Walker  
C. H. COOMBS ..... Cass Lake

## CHIPPEWA COUNTY

H. A. ROUST ..... Montevideo  
F. M. BURNS ..... Milan  
L. R. LIMA, JR. .... Montevideo  
J. H. ALLEN ..... Montevideo

## CHISAGO COUNTY

J. E. HALPIN ..... Rush City

## CLAY COUNTY

J. W. DUNCAN ..... Moorhead  
V. D. THYSELL ..... Hawley

## CLEARWATER COUNTY

L. J. LARSON ..... Bagley  
W. E. ANDERSON ..... Clearbrook

## COOK COUNTY

W. R. SMITH ..... Grand Marais

## COTTONWOOD COUNTY

H. C. STRATTE ..... Windom  
E. S. SCHUTZ ..... Mountain Lake  
J. V. CARLSON ..... Westbrook

## CROW WING COUNTY

V. E. QUANSTROM ..... Brainerd  
G. I. BADEAUX ..... Brainerd  
J. B. NIXON ..... Crosby

## DAKOTA COUNTY

BERNICE THORESON ..... South St. Paul  
H. J. JUST ..... Hastings  
A. H. FIELD ..... Farmington

## DODGE COUNTY

C. E. BIGELOW ..... Dodge Center  
D. E. AFFELDT ..... Kasson  
G. E. OLSON ..... West Concord

## DOUGLAS COUNTY

E. E. EMERSON ..... Osakis  
G. W. CLIFFORD ..... Alexandria  
E. R. SATHER ..... Alexandria

## FARIBAULT COUNTY

W. C. CHAMBERS ..... Blue Earth  
M. D. COOPER ..... Winnebago  
RICHARD VIRNIG ..... Wells

## FILLMORE COUNTY

H. M. SKAUG ..... Chatfield  
L. W. CLARK ..... Spring Valley  
J. P. NEHRING ..... Preston

## FREEBORN COUNTY

L. C. BARR ..... Albert Lea  
C. E. J. NELSON ..... Albert Lea  
A. G. SHERMAN ..... Albert Lea  
CATHERINE BURNS ..... Albert Lea

## GOODHUE COUNTY

R. B. GRAVES ..... Red Wing  
W. W. LIFFRIG ..... Red Wing  
G. F. HARTNAGEL ..... Red Wing

## GRANT COUNTY

L. R. PARSON ..... Elbow Lake  
J. H. CAIN ..... Hoffman

## HENNEPIN COUNTY

SILAS C. ANDERSEN ..... Minneapolis  
ARTHUR A. WOHLRABE ..... Minneapolis  
BERNARD I. SALITERMAN ..... Minneapolis  
ROBERT D. SEMSCH ..... Minneapolis  
L. RAYMOND SCHERER ..... Minneapolis  
LLOYD F. SHERMAN ..... Minneapolis  
NATHAN K. JENSEN ..... Minneapolis  
E. HARVEY O'PHELAN ..... Minneapolis

MINNESOTA MEDICINE

# COUNTY MEDICAL ADVISORY COMMITTEES

## HOUSTON COUNTY

N. T. NORRIS .....Caledonia  
L. K. ONSGARD .....Houston  
L. A. KNUTSON .....Spring Grove

## HUBBARD COUNTY

DONALD HOUSTON .....Park Rapids  
W. W. HIGGS .....Park Rapids  
JOHN EILER .....Park Rapids

## ISANTI COUNTY

W. T. NYGREN .....Braham

## ITASCA COUNTY

E. K. ROWLES .....Coleraine  
G. M. ERSKINE .....Grand Rapids  
M. J. McKENNA .....Grand Rapids

## JACKSON COUNTY

J. T. ROSE .....Lakefield  
H. A. CHRISTIANSEN .....Jackson  
W. H. HALLORAN .....Jackson

## KANABEC COUNTY

W. F. NORDMAN .....Mora

## KANDIYOHI COUNTY

J. C. JACOBS .....Willmar  
H. G. BOSLAND .....Willmar  
W. H. SUTHERLAND .....New London

## KITTSOON COUNTY

A. S. BERLIN .....Hallock

## KOOCHICHING COUNTY

R. D. HANOVER .....International Falls  
R. A. MACDONALD .....Littlefork  
C. C. CRAIG .....International Falls

## LAC QUI PARLE COUNTY

V. T. FALLON .....Dawson  
CHESTER ANDERSON .....Madison

## LAKE COUNTY

RALPH PAPERMASTER .....Two Harbors

## LAKE-OF-THE-WOODS

A. A. BRINK .....Baudette

## LINCOLN COUNTY

P. E. HERMANSON .....Hendricks  
A. L. VADHEIM .....Tyler  
M. H. LARSON .....Lake Benton

## LYON COUNTY

B. C. FORD .....Marshall  
W. W. YAEGER .....Marshall  
W. G. WORKMAN .....Tracy

## MARSHALL COUNTY

CARLE HOLMSTROM .....Warren

## MARTIN COUNTY

R. C. HUNT .....Fairmont  
C. W. KRAUSE .....Fairmont  
H. A. WILLIAMSON .....Fairmont  
ANTHONY OURADA .....Fairmont  
M. J. LESTER .....Truman

## MCLEOD COUNTY

A. M. JENSEN .....Brownton  
E. W. LIPPMAN .....Hutchinson

## MEEKER COUNTY

HAROLD WILMOT .....Litchfield  
LENNOX DANIELSON .....Litchfield  
G. M. OLSON .....Litchfield

## MILLE LACS COUNTY

A. T. KAPSNER .....Princeton

## MORRISON COUNTY

A. M. WATSON .....Royalton  
E. G. KNIGHT .....Svanville  
O. C. BOLSTAD .....Little Falls  
M. L. HANSEN .....Little Falls

## MOWER COUNTY

L. F. TWIGGS .....Austin  
J. G. HAVENS .....Austin

## MURRAY COUNTY

B. M. STEVENSON .....Fulda  
R. F. PIERSON .....Slayton  
H. D. PATTERSON .....Slayton

## NICOLLET-LE SUEUR COUNTY

R. A. CURTIS .....Le Center  
H. J. NILSON .....North Mankato  
M. E. LENANDER .....St. Peter

## NOBLES COUNTY

E. W. ARNOLD .....Adrian  
E. A. KILBRIDE .....Worthington

## NORMAN COUNTY

BYRON KINKADE .....Ada

## OLMSTED COUNTY

N. O. HANSON .....Rochester  
E. A. OLSON .....Pine Island  
T. O. WELLNER .....Rochester

## OTTERTAIL COUNTY

C. A. BOLINE .....Battle Lake  
W. O. B. NELSON .....Fergus Falls  
C. W. LEWIS .....Henning  
RALPH ESTREM .....Fergus Falls

## PENNINGTON COUNTY

M. D. STAREKOW .....Thief River Falls

# COUNTY MEDICAL ADVISORY COMMITTEES

## PINE COUNTY

A. K. STRATTE ..... Pine City

## PIPESTONE COUNTY

W. G. BENJAMIN ..... Pipestone  
J. G. LOHMANN ..... Pipestone  
G. BECKERING ..... Edgerton

## POLK COUNTY

C. G. UHLEY ..... Crookston

## POPE COUNTY

PAUL SWEDENBURG ..... Glenwood  
G. E. LEE ..... Glenwood

## RAMSEY COUNTY

D. M. CRAIG ..... St. Paul  
M. L. STRAUS ..... St. Paul  
A. E. MULLER ..... No. St. Paul

## RED LAKE COUNTY

LESTER DALE ..... Red Lake Falls

## REDWOOD COUNTY

A. W. DIESSNER ..... Redwood Falls  
W. E. JOHNSON ..... Morgan  
H. KNOCHE ..... Morgan

## RENVILLE COUNTY

J. A. COSGRIFF, SR. .... Olivia  
JOHN DORDAL ..... Sacred Heart  
R. PIERCE ..... Olivia

## RICE COUNTY

A. W. NUETZMAN ..... Faribault  
BERNARD STREET ..... Northfield  
PAUL G. BAUER ..... Faribault

## ROCK COUNTY

C. L. SHERMAN ..... Luverne  
A. C. MARTIN ..... Luverne  
F. W. BOFENKAMP ..... Luverne

## ROSEAU COUNTY

LLOYD KLEFSTAD ..... Greenbush

## ST. LOUIS COUNTY

J. J. COLL ..... Duluth  
K. E. JOHNSON ..... Duluth  
A. L. ABRAHAM ..... Duluth

## SCOTT COUNTY

H. M. JUERGENS ..... Belle Plaine  
HARRY N. SIMMONDS ..... Prior Lake  
J. E. PONTERIO ..... Shakopee

## SHERBURNE COUNTY

A. B. ROEHLKE ..... Elk River

## SIBLEY COUNTY

ROLF HOVDE ..... Winthrop  
R. H. KATH ..... Arlington  
D. C. OLSON ..... Gaylord

## STEARNS-BENTON COUNTY

C. F. BRIGHAM, JR. .... St. Cloud  
J. B. BEUNING ..... St. Cloud  
R. N. JONES ..... St. Cloud  
N. F. MUSACHIO ..... Foley  
K. A. WALFRED ..... St. Cloud

## STEELE COUNTY

A. J. OLSON ..... Owatonna  
J. A. MCINTYRE ..... Owatonna

## STEVENS COUNTY

O. A. EIDE ..... Hancock  
R. A. ROSSBERG ..... Morris  
A. I. ARNESON ..... Morris

## SWIFT COUNTY

E. J. KAUFMAN ..... Appleton  
R. P. GRIFFIN ..... Benson  
DONALD HOLM ..... Benson

## TODD COUNTY

M. E. MOSBY ..... Long Prairie  
J. M. COOK ..... Staples  
F. N. GROSE ..... Clarissa

## TRAVERSE COUNTY

A. L. LINDBERG ..... Wheaton  
A. E. MAGNUSON ..... Wheaton  
W. F. MUIR ..... Browns Valley

## WABASHA COUNTY

C. G. OCHSNER ..... Wabasha  
E. C. BAYLEY ..... Lake City  
E. W. ELLIS ..... Elgin

## WADENA COUNTY

L. T. DAVIS ..... Wadena  
C. H. PIERCE ..... Wadena  
W. E. PARKER ..... Sebeka

## WASECA COUNTY

S. T. NORMANN ..... Waseca  
B. J. GALLAGHER ..... Waseca

## WASHINGTON COUNTY

M. JUERGENS ..... Stillwater  
C. H. SHERMAN ..... Bayport  
R. E. CARLSON ..... Stillwater

## WATONWAN COUNTY

A. D. MATTSON ..... Saint James  
HERBERT BOYSEN ..... Madelia

## WILKIN COUNTY

L. O'BRIEN ..... Breckenridge  
C. W. JACOBSON ..... Breckenridge

## WINONA COUNTY

HERBERT V.R. HEISE ..... Winona  
ROBERT B. TWEEDY ..... Winona  
HENRY J. ROEMER ..... Winona

## WRIGHT COUNTY

S. J. RAETZ ..... Maple Lake  
R. M. SANDEEN ..... Buffalo

## YELLOW MEDICINE COUNTY

CARL LUNDELL ..... Granite Falls  
O. M. ODLAND ..... Granite Falls  
E. R. HUDEC ..... Echo



# WOMAN'S AUXILIARY to the MINNESOTA STATE MEDICAL ASSOCIATION

## Officers

Mrs. H. H. FESLER.....	President.....	St. Paul
Mrs. L. P. HOWELL.....	President-elect.....	Rochester
Mrs. DAVID HALPERN.....	First Vice President.....	Brewster
Mrs. KARL JOHNSON.....	Second Vice President.....	Duluth
Mrs. HARVEY O. BEEK.....	Third Vice President.....	St. Paul
Mrs. A. O. SWENSON.....	Fourth Vice President.....	Duluth
Mrs. E. R. HUDEC.....	Recording Secretary.....	Echo
Mrs. W. P. GARDNER.....	Corresponding Secretary.....	St. Paul
Mrs. W. B. STROMME.....	Treasurer.....	Minneapolis
Mrs. G. H. GOEHRS.....	Auditor.....	St. Cloud
Mrs. WM. H. VON DER WEYER.....	Historian.....	St. Paul
Mrs. LEO FINK.....	Parliamentarian.....	Minneapolis

## Regional Advisors

Mrs. W. E. WELLMAN.....	First District.....	Rochester
Mrs. O. M. HEIBERG.....	Second District.....	Worthington
Mrs. MAGNUS WESTBY.....	Third District.....	Madison
Mrs. C. J. FRITSCH.....	Fourth District.....	New Ulm
Mrs. O. I. SOHLBERG.....	Fifth District.....	St. Paul
Mrs. CONRAD KARLEEN.....	Sixth District.....	Minneapolis
Mrs. LESLIE M. EVANS.....	Seventh District.....	Sauk Rapids
Mrs. VERNON D. THYSELL.....	Eighth District.....	Hawley
Mrs. J. L. MCLEOD.....	Ninth District.....	Grand Rapids

## Chairmen of Committees

### Standing Committees

<i>Allied Medical Careers—</i>	
Mrs. M. I. HAUGE.....	Clarkfield
<i>A.M.E.F.—</i>	
Mrs. JOHN DORDAL.....	Sacred Heart
<i>Archives—</i>	
Mrs. JAMES L. BENEPE.....	St. Paul
<i>Bulletin—</i>	
Mrs. C. E. CARLSON.....	Alexandria
<i>Cancer—</i>	
Mrs. J. H. CAMERON.....	Crookston
<i>Editor (MINNESOTA MEDICINE)—</i>	
Mrs. L. J. LEONARD.....	Minneapolis
<i>Finance—</i>	
Mrs. MARK RYAN.....	St. Paul
<i>Legislation—</i>	
Mrs. PHILIP K. ARZT.....	St. Paul
<i>Medical and Surgical Relief—</i>	
Mrs. W. T. GREENFIELD.....	Cokato
<i>Organization—</i>	
Mrs. L. P. HOWELL.....	Rochester
<i>Press and Publicity—</i>	
Mrs. G. E. HARMON.....	St. Paul

### Printing and Roster—

Mrs. REUBEN ERICKSON.....	Minneapolis
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### Program and Health Education—

Mrs. CHARLES E. MERKERT.....	Minneapolis
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### Public Relations—

Mrs. G. A. HEDBERG.....	Nopeming
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### Resolutions—

Mrs. A. E. LINDBLOM.....	Mankato
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### Revisions—

Mrs. HAROLD F. WAHLQUIST.....	Minneapolis
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## Special Committees

<i>Civil Defense—</i>	Mrs. DONALD H. DEWEY.....	Owatonna
<i>Health Days—</i>	Mrs. PETER S. RUDIE.....	Duluth
<i>In Memoriam—</i>	Mrs. HERMAN KESTING.....	St. Paul
<i>Mental Health—</i>	Mrs. WILLIAM GJERDE.....	Lake City
<i>Newsletter—</i>	Mrs. M. F. FELLOWS.....	Duluth

# County Society Roster

## Key to Symbols:

\*Deceased, †Affiliate, Associate, Junior Associate, Life or Resident Member; ‡In Service;  
§Wife is Member of Woman's Auxiliary.

### BLUE EARTH COUNTY MEDICAL SOCIETY

#### Blue Earth County

Regular Meetings, last Monday of the month. Annual Meeting, last Monday of December.

Number of Members—62

<i>President</i>		
CHALGREN, WILLIAM S.	.....	Mankato
<i>Secretary</i>		
MCMNEAR, GEORGE R., JR.	.....	Mankato
§ Anderson, James J.	.....	Mankato
Anderson, Margaret C.	.....	Mankato
†§ Andrews, Roy N.	.....	Mankato
Baird, Raymond L.	.....	Lake Crystal
Batdorf, B. Niles	.....	Mankato
Butzer, John A.	.....	Mankato
Butzer, John F.	.....	Mankato
Chalgren, William S.	.....	Mankato
Conley, Robert H.	.....	Mankato
Dobson, M. W.	.....	Mankato
Engstrom, Robert	.....	Mankato
Eustermann, John J.	.....	Mankato
Fortier, Rene G.	.....	Mankato
†§ Franchere, Fredk. Wm.	.....	Lake Crystal
†§ Fugina, George R.	.....	Mankato
§ Geurs, Benjamin R.	.....	Mankato
Haes, Julius E.	.....	Mankato
Hammar, Lawrence M.	.....	Mankato

Hankerson, Robert G.	.....	Minnesota Lake
† Hassett, Roger C.	.....	Mankato
Heimark, John J.	.....	Mankato
Heller, Edgar E.	.....	Mankato
Hooper, Philip G.	.....	Mankato
Howard, Marshall I.	.....	Mankato
† Huffington, Herbert L., Sr.	.....	Lutsen
Huffington, Herb. L.	.....	Waterville
† Jones, Orville H.	.....	Mankato
† Juliar, Richard O.	.....	Los Angeles, Calif.
§ Kaufman, Walter B.	.....	Mankato
Kearney, Rochfort W.	.....	Mankato
Kemp, Alphonse F.	.....	Mankato
Koenigsberger, Charles	.....	Mankato
§ Langhoff, Arthur H.	.....	Mankato
† Liedloff, Adolph G.	.....	Mankato
§ Lindholm, Alton E.	.....	Mankato
† Luck, Hilda	.....	Mankato
§ McNear, George R., Jr.	.....	Mankato
†§ Mickelson, John C.	.....	Durham, N. C.
†§ Miller, Victor I.	.....	Mankato
§ Morgan, Hugh O.	.....	Amboy

Olive, John T.	.....	Mankato
Penn, George E.	.....	Mankato
Roth, Frederick D.	.....	Mankato
Sanford, Raymond A.	.....	Mankato
Scheidel, Alois M.	.....	Mankato
† Schmidt, Paul A.	.....	Aurora, Illinois
Schmitz, Anthony A.	.....	Mankato
Sjoding, J. Donald	.....	Mankato
Smith, Harry J.	.....	Lake Crystal
Smith, Paul M.	.....	Lake Crystal
Snider, Howard R.	.....	Mankato
† Schmer, Alphonse E.	.....	Mankato
Stillwell, Walter C.	.....	Mankato
Swenson, Donald B.	.....	Mankato
Thiem, Chester E.	.....	Mankato
† Troost, Henry B.	.....	Mankato
Veizina, John C.	.....	Mapleton
† Von Drasek, Joseph	.....	Mankato
†§ Wentworth, Albert J.	.....	Mankato
§ Williams, Hugh O.	.....	Lake Crystal
§ Wohlrahe, John C.	.....	St. Clair
Zee, Urban H.	.....	Mankato

### BLUE EARTH VALLEY MEDICAL SOCIETY

#### Martin-Watonwan-Faribault

Regular Meetings, third Thursday of each month. Annual Meeting in November.

Number of Members—50

<i>President</i>		
WANDKE, OTTO E.	.....	Fairmont
<i>Secretary</i>		
BOYSEN, HERBERT	.....	Madelia
Anderson, John W.	.....	Blue Earth
Armstrong, Ralph S.	.....	Winnebago
Bart, James S.	.....	Elmore
Bergman, Oscar B.	.....	St. James
Blumberg, Henry B.	.....	Fairmont
Boysen, Herbert	.....	Madelia
Bratrude, Earl J.	.....	St. James
† Chambers, Winslow C.	.....	Blue Earth
† Cooper, Maurice D.	.....	Winnebago
† Coulter, Harold E.	.....	Madelia
† Drexler, George W.	.....	Blue Earth
§ Gambel, Elbert J.	.....	Bricelyn
§ Gamm, Edgar R.	.....	Triumph

Gardner, Jack K.	.....	Ceylon
§ Gardner, Victor H.	.....	Fairmont
Halverson, Donald E.	.....	Winnebago
Hanson, Lewis	.....	Frost
Heimark, Julius J.	.....	Fairmont
Hruza, William J.	.....	Madelia
† Hunt, Roscoe C.	.....	Fairmont
Kraemer, George N.	.....	Fairmont
Krause, C. W.	.....	Fairmont
Lester, Malcolm J., Jr.	.....	Truman
Lindahl, Merlyn J.	.....	Sherburn
Louisell, Charles T.	.....	Fairmont
† McGroarty, John J.	.....	Easton
Mattson, Albert D.	.....	St. James
† Mills, John L.	.....	Winnebago
† Misbach, William D.	.....	Sherman Oaks, Calif.
† Moulton, K. B.	.....	St. James
§ Nickerson, John R.	.....	Fairmont

§ Nickerson, Neil D.	.....	Fairmont
Ourada, Anthony L.	.....	Fairmont
§ Parsons, R. A.	.....	St. James
§ Parsons, Ralph L.	.....	Monterey
† Rollins, Troy G.	.....	Rochester
† Revelstad, Roger A.	.....	Fairmont
Russ, Homer H.	.....	Blue Earth
§ Smith, Don V.	.....	Blue Earth
§ Snyder, Clifford D.	.....	Kiester
§ Thayer, Ellsworth A.	.....	Fairmont
Thompson, A. Henry	.....	Madelia
† Vaughan, Victor M.	.....	Truman
Virnig, Mark P.	.....	Wells
Virnig, Richard P.	.....	Wells
Wandke, Otto E.	.....	Fairmont
Watkins, John A.	.....	Wells
§ Williamson, Harold A.	.....	Fairmont
† Wilson, Clyde E.	.....	Blue Earth
§ Zemke, Erhart E.	.....	Fairmont

### BROWN COUNTY MEDICAL SOCIETY

#### Brown County

Regular Meetings, quarterly. Annual Meeting in January.

Number of Members—30

<i>President</i>		
FRITSCHIE, CARL J.	.....	New Ulm
<i>Secretary</i>		
KAISER, MILTON	.....	New Ulm
Black, William A.	.....	New Ulm
Burnett, Joseph W.	.....	New Ulm
Cairns, Robert J.	.....	Redwood Falls
Carthey, Frank J.	.....	New Ulm
Dubbe, Frederick H.	.....	New Ulm
Dysterheft, Adolf E.	.....	Gaylord

§ Fesenmaier, Otto B.	.....	New Ulm
§ Flinn, James B.	.....	Redwood Falls
§ Fritzsche, Albert	.....	New Ulm
§ Fritzsche, Carl J.	.....	New Ulm
§ Fritzsche, Theodore R.	.....	New Ulm
§ Goblirsch, Andrew P.	.....	Sleepy Eye
§ Hovde, Rolf	.....	Winthrop
§ Inglis, William J.	.....	Redwood Falls
§ Kaiser, Milton L.	.....	New Ulm
§ Keithahn, Elmer E.	.....	Sleepy Eye
§ Kitzberger, Peter J.	.....	New Ulm
§ Kruckick, S. J.	.....	Sleepy Eye

†§ Kusske, Arthur L.	.....	New Ulm
§ Muesing, William J.	.....	New Ulm
§ Nuesse, Walter G.	.....	Springfield
§ Penk, Engward L.	.....	Springfield
§ Peterson, Roy A.	.....	Vesta
†§ Reineke, George F.	.....	New Ulm
§ Saffert, Cornelius A.	.....	New Ulm
§ Schroepfel, John E.	.....	Winthrop
§ Seifert, Otto J.	.....	New Ulm
§ Vogel, Howard A. L.	.....	New Ulm
§ Wisness, Osmund A.	.....	Comfrey
§ Wohlrahe, Edwin J.	.....	Springfield

## COUNTY SOCIETY ROSTER

### CAMP RELEASE DISTRICT MEDICAL SOCIETY

Chippewa, Lac qui Parle and Yellow Medicine Counties

Regular Meetings, second Thursday. Annual Meeting in November.

#### Number of Members—34

**President**  
ODLAND, OLIN M. Granite Falls

**Secretary**  
ALLEN, JOHN H. Montevideo

Allen, John H. Montevideo  
Anderson, Chester A. Madison  
Barr, Ronald W. Montevideo  
Boody, George, Jr. Sandstone  
Burns, Floyd M. Milan  
Burns, M. Alpheus Milan  
Camp, Ray Junior Madison  
Fallon, Virgil Dawson

Flom, Robert S. Columbus, Ga.  
Guilbert, G. D. Minneapolis  
Hartfield, Herbert A. Montevideo  
Hauge, Malvin L. Clarkfield  
Holmberg, LeRoy J. Canby  
Hudec, Elwyn R. Echo  
Hustad, Edward G. Montevideo  
Johnson, Vilhelm M. Dawson  
Jordan, Kathleen B. Smith  
Jordan, Lewis S. Granite Falls  
Kaufman, William C. Granite Falls  
Krystosek, Lee A. Appleton  
Larson, Arthur N. Madison

Larson, Dorette W. Madison  
Lee, Walter N. Claremont, Calif.  
Lina, Ludvig R., Jr. Montevideo  
Lundell, Carl L. Granite Falls  
Maus, Phillip New Orleans, La.  
Miller, William P. Montevideo  
Nelson, Melvin S. Granite Falls  
Odland, Olin M. Granite Falls  
Owens, William A. Montevideo  
Perti, Albert L. Canby  
Roust, Henry A. Montevideo  
Schmidt, Paul G., Jr. Granite Falls  
Westby, Magnus Madison  
Westby, Norval M. Madison

### CLAY-BECKER COUNTY MEDICAL SOCIETY

Clay & Becker Counties

Regular Meetings, spring, fall and winter. Annual Meeting, November 30.

#### Number of Members—24

**President**  
RICE, HAGBART G. Moorhead

**Secretary**  
DODDS, WILLIAM C. Detroit Lakes

Bigler, Earl E. Perham  
Bigler, Ivan E. Perham  
Bottolfsen, Bottolf T. Moorhead  
Carlson, Vernon J. Moorhead

Dodds, William C. Detroit Lakes  
Duncan, James W. Moorhead  
Geib, Marvin J. Moorhead  
Hagen, Olaf J. Moorhead  
Houglum, Arvid J. Lake Park  
Humphrey, Edward W., Sr. Moorhead  
Johnson, Olga H. Moorhead  
Larson, Arnold Detroit Lakes  
Lorentzen, Ernest S. Detroit Lakes  
Midthune, A. S. Lake Park

Moberg, Clarence W. Detroit Lakes  
Odland, Mark E. Detroit Lakes  
Rice, Hagbart G. Moorhead  
Rutledge, John B. Detroit Lakes  
Rutledge, Lloyd H. Detroit Lakes  
Saxman, Gertrude Georgetown  
Simison, Carl Barnesville  
Thysell, Fred A. Moorhead  
Thysell, Vernon D. Hawley  
Watson, Virgil A. Detroit Lakes

### EAST CENTRAL MINNESOTA MEDICAL SOCIETY

Anoka, Chisago, Isanti, Kanabec, Mille Lacs, Pine and Sherburne Counties

Regular Meetings, first Tuesday of every other month of the year.

Annual Meeting, first Tuesday in December.

#### Number of Members—40

**President**  
BURSETH, EDGAR C. Mora

**Secretary**  
TESCH, GORDON H. Elk River

Adkins, Galen H. Anoka  
Albrecht, H. H. Chisago City  
Berge, Harry L. Mora  
Beyer, Eugene F. San Francisco, Calif.  
Bossert, Clarence S. Mora  
Bunker, Bevan W. Anoka  
Burseth, Edgar C. Mora  
Dredge, Homer P. Sandstone  
Gully, Raymond J. Cambridge  
Halpin, Joseph E. Rush City

Hedenstrom, Paul H. Cambridge  
Henry, Harold W. Hinckley  
Holmes, Alva E. Rush City  
Hubin, Edwin G. Sandstone  
Johnson, Robert H. Chisago City  
Kapner, Alfred T. Princeton  
Kelsey, Carleton G. St. Paul  
Lee, Henry M. Cambridge  
McManus, William F. Princeton  
Mach, Ralph F. Pine City  
Magnuson, Raymond C. Cambridge  
Metcalfe, Norman B. Princeton  
Nelson, Luther A. Rush City  
Nordman, Willard F. Mora

Nygren, William T. Braham  
Pasek, Edward A. Minneapolis  
Peterson, Alvin C. Mora  
Pone, John Cambridge  
Potek, David Cambridge  
Roehke, Arthur B. Elk River  
Rudolph, Frank A. Sandstone  
Schut, John W. Anoka  
Spurzem, Raymond J. Anoka  
Stahn, Louis H. Modesto, Calif.  
Stratte, Alf K. Pine City  
Swensen, Roy G. North Branch  
Tesch, Gordon H. Elk River  
Vik, Melvin Anoka  
Waller, Joseph D. Pine City  
Woyda, William C. Elk River

### FREEBORN COUNTY MEDICAL SOCIETY

Freeborn County

Regular Meetings, third Thursday of even months. Annual Meeting, December.

#### Number of Members—32

**President**  
SCHMIDT, RUBEN F. Alden

**Secretary**  
ELLERTSON, LEONARD M. Albert Lea

Barr, Lowell C. Albert Lea  
Burns, Catherine Albert Lea  
Butturf, Carl R. Freeborn  
Calhoun, F. W. Albert Lea  
Demo, Robert A. Albert Lea  
Donovan, Daniel L. Albert Lea  
Egge, Sanford G. Albert Lea

Ellertson, Leonard M. Albert Lea  
Erdal, Ove A. Albert Lea  
Folken, Frank G. Albert Lea  
Freeman, John P. Glenville  
Gill, Theodore Albert Lea  
Gillickson, Andrew Minneapolis  
Hansen, Theodore M. Albert Lea  
Holian, Darwin K. Albert Lea  
Kaasa, Lawrence J. Albert Lea  
Keil, Marcus A. Albert Lea  
Leopard, Brand A. Brownsville, Texas  
Menefee, Edward C. Albert Lea

Neel, Harry B. Albert Lea  
Nelson, Clayton E. Albert Lea  
Nesheim, Martin O. Emmons  
Palmer, Clinton F. Albert Lea  
Person, John P. Albert Lea  
Prins, Leo R. Albert Lea  
Ryding, Vincent Albert Lea  
Schmidt, Ruben F. Alden  
Schultz, J. Albert Lea  
Sherman, Alfred G. Albert Lea  
Steiner, Leon E. Philadelphia, Pa.  
Whitson, Sidney A. Albert Lea  
Wilcox, G. Charles Albert Lea

### GOODHUE COUNTY MEDICAL SOCIETY

Goodhue County

Regular Meetings, second Thursday. Annual Meeting, December.

#### Number of Members—27

**President**  
DEGEEST, JAMES H. Goodhue

**Secretary**  
HAWLEY, GEORGE M. B. Red Wing

Aanes, Almer M. Red Wing  
Akins, Willard M. Red Wing  
Allen, George S. Cannon Falls  
Boswell, J. Thornton Kenosha, Wis.

Bridge, Ezra V. Cannon Falls  
Brusegard, James F. Red Wing  
Claydon, Howard F. Red Wing  
deGeest, James H. Goodhue

# COUNTY SOCIETY ROSTER

‡ Dovenmuehle, Robert H. Durham, N. G.  
 ‡ Falls, John L. Red Wing  
 ‡ Graves, Richard B. Red Wing  
 ‡ Halvorson, James W. Zumbrota  
 ‡ Hartnagel, G. F. Red Wing  
 ‡ Hawley, George M. B. Red Wing

\*Hedin, Raymond F. Red Wing  
 ‡ Jones, Alvah W. Red Wing  
 ‡ Juers, Edward H. Red Wing  
 ‡ Kimmel, George C. Red Wing  
 ‡ Larson, Oliver E. H. Zumbrota  
 ‡ Liffing, William W. Red Wing  
 ‡ Miller, Winston R. Red Wing

‡ Molenaar, Robert E. Cannon Falls  
 ‡ Sherman, Royal V. Red Wing  
 ‡ Smith, Myron W. Red Wing  
 ‡ Steffens, Leon A. Red Wing  
 ‡ Walter, William E. Wamamingo  
 ‡ Wasmund, Clarence W. Red Wing  
 ‡ Williams, Marland R. Cannon Falls

## HENNEPIN COUNTY MEDICAL SOCIETY

### Hennepin County

Regular Meetings, first Monday of each month, October through May.

Annual Meeting, first Monday in October.

Number of Members—965

*President*  
 PRIEST, ROBERT E. Minneapolis  
*Secretary*  
 HOLMBERG, CONRAD J. Minneapolis  
*Exec. Secretary*  
 COOK, THOMAS P. Minneapolis

Abramson, Milton Minneapolis  
 Adkins, Charles D. Minneapolis  
 ‡ Agustsson, Hreidar Aberdeen, Md.  
 ‡ Ahern, Eugene E. Minneapolis  
 ‡ Alexander, Harlan A. Minneapolis  
 ‡ Aling, Charles A. Minneapolis  
 Althausen, Theodore L., Jr. Minneapolis  
 ‡ Altnow, Hugo O. Coral Gables, Fla.  
 ‡ Amatuzio, Donald S. Minneapolis  
 ‡ Andersen, Silas C. Minneapolis  
 ‡ Anderson, Arnold S. St. Louis Park  
 ‡ Anderson, David M. Minneapolis  
 ‡ Anderson, Edward D. Minneapolis  
 ‡ Anderson, Ernest R. Minneapolis  
 ‡ Anderson, Frank J. Minneapolis  
 ‡ Anderson, John T. Minneapolis  
 ‡ Anderson, Karl W. Minneapolis  
 ‡ Anderson, Roger W. Minneapolis  
 ‡ Anderson, U. Schuyler Minneapolis  
 ‡ Anderson, Wallace E. Minneapolis  
 ‡ Anderson, William H. Minneapolis  
 ‡ Anderson, William T. Minneapolis  
 ‡ Andreassen, Einar C. St. Paul  
 ‡ Andreassen, Rolf L. Minneapolis  
 ‡ Andresen, Karl d'A. Minneapolis  
 ‡ Andrews, Robert S. Minneapolis  
 ‡ Ankner, Frank J. Minneapolis  
 ‡ Arends, Archibald L. Minneapolis  
 ‡ Arey, Stuart Lane Minneapolis  
 ‡ Arhelger, Stuart W. Minneapolis  
 ‡ Arlander, Clarence E. Minneapolis  
 ‡ Arling, Leonard S. Minneapolis  
 ‡ Arms, James J. Minneapolis  
 ‡ Arnold, Anna W. Minneapolis  
 ‡ Arvidson, Carl G. Minneapolis  
 ‡ Aune, Martin Minneapolis  
 ‡ Aurand, William Henry Minneapolis

‡ Baggenstoss, Osmond J. Minneapolis  
 ‡ Bagley, Russell W. Minneapolis  
 ‡ Baird, Joseph W. Minneapolis  
 ‡ Baken, Melvin P. Minneapolis  
 ‡ Baker, Abe B. Minneapolis  
 ‡ Baker, Alfred T. Minneapolis  
 ‡ Baker, Milton E. Minneapolis  
 ‡ Baleisis, Peter Minneapolis  
 ‡ Balkin, Samuel G. Minneapolis  
 ‡ Balogh, Charles J. Minneapolis  
 ‡ Bank, Harry E. San Francisco, Calif.  
 ‡ Barno, Alex St. Louis Park  
 ‡ Barr, Maxwell M. Minneapolis  
 ‡ Barr, Robert N. Minneapolis  
 ‡ Barron, Jesse J. Minneapolis  
 ‡ Barron, Moses Minneapolis  
 ‡ Barron, S. Steven Minneapolis  
 ‡ ‡Baxter, Stephen H. Minneapolis  
 ‡ Beach, Northrop Minneapolis  
 ‡ Becker, Arnetta Minneapolis  
 ‡ Bedford, Edgar W. Minneapolis  
 ‡ Beirstein, Samuel Minneapolis  
 ‡ Beiswanger, Richard H. Minneapolis  
 ‡ Bell, E. T. Minneapolis  
 ‡ Belleville, Titus P. Minneapolis  
 ‡ Belzer, Meyer S. Minneapolis  
 ‡ Benesh, Louis A. Minneapolis  
 ‡ Benjamin, Edwin G. Minneapolis  
 ‡ Benjamin, Harold G. Minneapolis  
 ‡ Berg, Clinton C. Wayzata  
 ‡ Berger, Alex G. Minneapolis  
 ‡ Bergh, George S. Minneapolis  
 ‡ Bergh, Solveig M. Minneapolis  
 ‡ Berghund, Eldon B. Minneapolis  
 ‡ Bergquist, James R. Minneapolis  
 ‡ Berkwitz, Nathaniel J. Minneapolis  
 ‡ Berman, Reuben Minneapolis  
 ‡ Bernstein, Irving C. Minneapolis  
 ‡ Bessen, Alfred N., Jr. Minneapolis

‡ Bieter, Raymond N. Minneapolis  
 ‡ Bilka, Paul J. Minneapolis  
 ‡ Binder, Manuel R. Minneapolis  
 ‡ Blake, Allen J. Hopkins  
 ‡ Blake, James A. Hopkins  
 ‡ Blake, Paul S. Hopkins  
 ‡ Bloedel, Traugott J. Osseo  
 ‡ Blomberg, Robert D. Minneapolis  
 ‡ Blomberg, William R. Minneapolis  
 ‡ Bloom, Norman B. Minneapolis  
 ‡ Blumenthal, Jacob S. Minneapolis  
 ‡ Boehrer, John J. Minneapolis  
 ‡ Bofenkamp, Benjamin Minneapolis  
 ‡ Bohn, Donald G. Minneapolis  
 ‡ Boies, Lawrence R. Minneapolis  
 ‡ Booth, Albert E. Minneapolis  
 ‡ Boreen, Clifton A. Minneapolis  
 ‡ ‡Borgeson, Egbert J. St. Paul  
 ‡ Borman, Chauncey N. Minneapolis  
 ‡ Borowicz, Leonard A. Minneapolis  
 ‡ Bowers, Gordon G. Minneapolis  
 ‡ Boynton, Ruth E. Minneapolis  
 ‡ Braasch, John W. Minneapolis  
 ‡ Bratrud, Arthur F. Minneapolis  
 ‡ Bratrud, Theodore E. Minneapolis  
 ‡ Breitenbucher, Robert B. Minneapolis  
 ‡ Brekke, Harvey J. Minneapolis  
 ‡ Bridge, Allyn G. Minneapolis  
 ‡ Brill, Alice K. Minneapolis  
 ‡ ‡ Brooks, Charles N. Minneapolis  
 ‡ Brown, Edgar D. St. Petersburg, Fla.  
 ‡ Brown, Ian A. Minneapolis  
 ‡ Brown, William D. Minneapolis  
 ‡ Buchstein, Harold F. Minneapolis  
 ‡ Buirge, Raymond E. Minneapolis  
 ‡ Bulkley, Kenneth Minneapolis  
 ‡ Burnham, Wesley H. Minneapolis  
 ‡ Bushard, Wilfred J. Minneapolis  
 ‡ Buzzelle, Leonard K. Minneapolis

‡ Cable, Morris L. Minneapolis  
 ‡ Cabot, Clyde M. Minneapolis  
 ‡ Cady, Laurence H. Minneapolis  
 ‡ Cameron, Isabell L. Minneapolis  
 ‡ Campbell, Lowell M. Minneapolis  
 ‡ Campbell, Orwood J. Minneapolis  
 ‡ Caplan, Leslie Minneapolis  
 ‡ Card, William H. Minneapolis  
 ‡ Carey, James B. Minneapolis  
 ‡ Carlander, Lester W. Minneapolis  
 ‡ Carlson, Charles V. Mound  
 ‡ Carlson, Lawrence Minneapolis  
 ‡ Carlson, Leonard T. Minneapolis  
 ‡ Caron, Robert P. Minneapolis  
 ‡ Carr, William J. Minneapolis  
 ‡ Caspers, Carl G. Minneapolis  
 ‡ ‡Cavanaugh, Frank T. Minneapolis  
 ‡ Ceder, Elmer T. Minneapolis  
 ‡ Challman, S. Alan Minneapolis  
 ‡ Chavez, Demetrio A. Minneapolis  
 ‡ Chesler, Merrill D. Minneapolis  
 ‡ ‡Chesley, Albert J. Minneapolis  
 ‡ Child, Sherman B. Minneapolis  
 ‡ Chisholm, Tague C. Minneapolis  
 ‡ Clark, Malcolm D. Minneapolis  
 ‡ Clay, Lyman B. Minneapolis  
 ‡ Cochrane, Ray F. Minneapolis  
 ‡ Coe, John I. Minneapolis  
 ‡ Cohen, Bernard A. Minneapolis  
 ‡ Cohen, Ephraim B. Minneapolis  
 ‡ Cohen, Maxym M. St. Paul  
 ‡ Cohen, Sumner S. Oak Terrace  
 ‡ Cole, James S. Minneapolis  
 ‡ Condit, William H. Minneapolis  
 ‡ Cooper, Robert R. Minneapolis  
 ‡ Corniea, Albert D. Minneapolis  
 ‡ ‡Correa, Dale H. Minneapolis  
 ‡ Corrigan, Cyril J. Minneapolis  
 ‡ Cowan, Donald W. Minneapolis  
 ‡ Craig, M. Elizabeth Minneapolis  
 ‡ Cranmer, Richard R. Minneapolis  
 ‡ Cranston, Robert W. Minneapolis  
 ‡ Creevy, Charles D. Minneapolis  
 ‡ ‡Creighton, Ralph H. Minneapolis  
 ‡ Culligan, Leo C. Minneapolis

‡ Cundy, Donald T. Minneapolis  
 ‡ Cutts, George Minneapolis  
 ‡ Dady, Elmer E. Minneapolis  
 ‡ Daggett, Donald R. Minneapolis  
 ‡ Dahl, Elmer O. Minneapolis  
 ‡ Dahl, James C. Minneapolis  
 ‡ Dahl, John A. Minneapolis  
 ‡ ‡Daniel, Donald H. Minneapolis  
 ‡ ‡Danyluk, Michael Minneapolis  
 ‡ ‡David, Reuben Minneapolis  
 ‡ ‡Davis, Jay C. Minneapolis  
 ‡ ‡Davis, William I. Mound  
 ‡ del Plaine, Carlos W. Minneapolis  
 ‡ Dickman, Roy W. Monterey, Calif.  
 ‡ Diefenbach, Eugene J., Jr. Minneapolis  
 ‡ Diehl, Harold S. Minneapolis  
 ‡ Dierker, Heinrich Minneapolis  
 ‡ Diessner, Henry D. Minneapolis  
 ‡ Donatelle, Edward P. Minneapolis  
 ‡ Dorge, Richard I. Minneapolis  
 ‡ ‡Dornblaser, Harry B. Los Gatos, Calif.  
 ‡ Dorsey, George C. Minneapolis  
 ‡ ‡Doxey, Gilbert L. Minneapolis  
 ‡ ‡Doyle, Lawrence O. Minneapolis  
 ‡ ‡Drake, Charles R. Minneapolis  
 ‡ Drill, Herman E. Hopkins  
 ‡ Duff, Edwin R. Minneapolis  
 ‡ Dummer, Donald J. Minneapolis  
 ‡ Dunlap, Earl H. Minneapolis  
 ‡ Dupont, Joseph A. Excelsior  
 ‡ Duryea, Marbry Minneapolis  
 ‡ Duryea, Willis M. Minneapolis  
 ‡ Duryea, Willis M., Jr. Minneapolis  
 ‡ ‡Dutton, C. E. Minneapolis  
 ‡ ‡Dorak, Benjamin A. Minneapolis  
 ‡ ‡Dwan, Paul F. Minneapolis  
 ‡ Dworsky, Samuel D. Minneapolis

‡ Eder, W. P. Minneapolis  
 ‡ Ehrenberg, Claude J. Minneapolis  
 ‡ Ehrlich, S. Paul Minneapolis  
 ‡ Eich, Matthew A. Minneapolis  
 ‡ Eichhorn, Edmund P. Minneapolis  
 ‡ Eisenstadt, David H. Minneapolis  
 ‡ Eisenstadt, William S. Minneapolis  
 ‡ Eitel, George D. Minneapolis  
 ‡ Eli, Earl W. Minneapolis  
 ‡ Ellison, David E. Minneapolis  
 ‡ Ellison, Ellis Minneapolis  
 ‡ Elrod, Calvin R. Long Lake  
 ‡ Emond, Albert J. Farmington  
 ‡ Emond, Joseph S. Farmington  
 ‡ Engel, Joseph P. Minneapolis  
 ‡ Engelhart, Peter C. Minneapolis  
 ‡ Englund, Elvin F. Minneapolis  
 ‡ Engstrand, Oscar J. Minneapolis  
 ‡ Engstrom, Denton P. Minneapolis  
 ‡ Erickson, Clifford O. Minneapolis  
 ‡ Erickson, Laurence F. Minneapolis  
 ‡ Erickson, Myron E. Minneapolis  
 ‡ Erickson, Reuben F. Minneapolis  
 ‡ ‡Erickson, Reinhold M. Wayzata  
 ‡ Esensten, Sidney Minneapolis  
 ‡ Evans, Edward T. Minneapolis  
 ‡ Evans, Robert D. Minneapolis

‡ Fahr, George Minneapolis  
 ‡ Fansler, Walter A. Minneapolis  
 ‡ Feeney, John M. Minneapolis  
 ‡ Feigal, David W. Wayzata  
 ‡ Feinberg, Philip Minneapolis  
 ‡ Feinberg, Samuel B. Minneapolis  
 ‡ Feinstein, Julius Y. Minneapolis  
 ‡ Fenger, Evjund P. K. Oak Terrace  
 ‡ Field, Charles W. Minneapolis  
 ‡ Fingeraman, David L. Minneapolis  
 ‡ Fink, Leo Wm. Minneapolis  
 ‡ Fink, Walter H. Minneapolis  
 ‡ ‡Fisher, Isadore L. Minneapolis  
 ‡ Fitzgerald, D. F. Wayzata  
 ‡ ‡Fjelstad, Christian A. Minneapolis  
 ‡ ‡Fleeson, William H. Minneapolis  
 ‡ Fleming, Dean S. Minneapolis



# COUNTY SOCIETY ROSTER

Flier, Richard R.	Minneapolis	Hay, Lyle J.	Minneapolis	King, Frances W.	Oak Terrace
Flink, Edmund B.	Minneapolis	Hayes, James M.	Minneapolis	Kinsella, Thomas J.	Minneapolis
Foker, Leslie W.	Minneapolis	Hays, Albert T.	Minneapolis	Knapp, Miland E.	Minneapolis
Folsom, Louis B.	Minneapolis	Head, Douglas P.	Minneapolis	Knight, Ralph T.	Minneapolis
Ford, William H.	Minneapolis	Hebel, Robert	Minneapolis	Knight, Ray R.	Minneapolis
Foster, Orley W.	Minneapolis	Hempel, Dean J.	Minneapolis	Knuksen, Helen L.	Minneapolis
Fowler, Lucius Wayne	Minneapolis	Hendrickson, John F.	Minneapolis	Koepcke, Gerald M.	Minneapolis
Fox, Donald P.	Tanganyika, East Africa	Henrikson, Earl C.	Minneapolis	Koller, Hermann M.	Minneapolis
Fox, James Rogers	Minneapolis	Henry, Clifford E.	Kirkville, Mo.	Koller, Louis R.	Minneapolis
Frane, Donald B.	Minneapolis	Herbert, Willis L.	Minneapolis	Koller, Robert L.	Minneapolis
Fredericks, George M.	Minneapolis	Hermann, Harold W.	Minneapolis	Korchik, John P.	Minneapolis
Freeman, Craig W.	Minneapolis	Higgins, John H.	Minneapolis	Kosiak, John, Jr.	Minneapolis
Freeman, Donald W.	St. Louis Park	Hilgermann, George O.	Minneapolis	Kottke, Frederic J.	Minneapolis
French, Lyle A.	Minneapolis	Hill, Earl	Minneapolis	Koucky, Rudolph W.	Minneapolis
Frey, Richard J.	Minneapolis	Hill, Elmer M.	Minneapolis	Kovack, Freeman D.	Minneapolis
Friberg, Joseph B.	Minneapolis	Hillis, Samuel J.	Minneapolis	Kraft, Walter E.	Minneapolis
Fried, Louis A.	Minneapolis	Hinckley, Robert G.	Minneapolis	Kremen, Arnold J.	Minneapolis
Friedell, Aaron	Minneapolis	Hirshfield, Frank R.	Minneapolis	Krieser, Albert E.	Minneapolis
Friedell, George	St. Louis Park	Hitchcock, Claude R.	Minneapolis	Kucera, Frank J.	Hopkins
Friedman, Harry S.	Minneapolis	Hoffbauer, Frederick W.	Minneapolis	Kucera, William J., Sr.	Minneapolis
Friedman, Jack	Minneapolis	Hoffert, Henry E.	Minneapolis	Kucera, William J., Jr.	Minneapolis
Friend, Charles A.	Minneapolis	Hoffman, Roy A.	Minneapolis	Kusz, Clarence V.	Minneapolis
Frost, John B.	Minneapolis	Hoffman, Walter L.	Minneapolis		
Frost, Russell H.	Oak Terrace	Holmberg, Conrad J.	Minneapolis	LaBree, John W.	Saint Louis Park
Fryman, Howard M.	Minneapolis	Holzapel, Fred C.	Minneapolis	Lajoie, John M.	Minneapolis
Frys, Russell N.	Minneapolis	Horns, Howard	Minneapolis	Lamb, H. Douglas	Minneapolis
Fuller, Alice H.	Oak Terrace	Horns, Richard C.	Minneapolis	Lang, Leonard A.	Minneapolis
Funk, Victor K.	Oak Terrace	Houkom, Bjarne	Minneapolis	Lange, Robert D.	Washington, D. C.
Furman, Lucie Christine	Minneapolis	Houle, Rollin J.	New Brighton	Lapierre, Arthur P.	Minneapolis
		Hovland, Melvin L.	Minneapolis	Lapierre, Jean T.	Minneapolis
Gaard, Richard C.	Minneapolis	Howard, Robert B.	Minneapolis	Larsen, Frank W.	Minneapolis
Gallett, Lester E.	Minneapolis	Howard, Solomon E.	Minneapolis	Larson, Clarence M.	Minneapolis
Galligan, Margaret M.	Minneapolis	Howell, Carter W.	Minneapolis	Larson, Donald M.	Minneapolis
Gammel, John H.	Minneapolis	Hudson, George E.	Minneapolis	Larson, Lawrence M.	Minneapolis
Garamella, Joseph J.	Minneapolis	Huenkens, Edgar J.	Minneapolis	Larson, Leonard M.	Oak Terrace
Garske, George L.	Minneapolis	Hulteng, Donald B.	Minneapolis	Larson, Paul N.	Minneapolis
Garte, Joseph L.	Minneapolis	Hultkrans, Rudolph E.	Minneapolis	Larson, Ralph H.	Anoka
Garvey, James T.	Minneapolis	Hurd, Annah	Minneapolis	LaVake, Rae T.	Minneapolis
Gaviser, David	Minneapolis	Hutchinson, Dorothy W.	Oak Terrace	Leaymon, Carl W.	Minneapolis
Gibbs, Robert W.	Minneapolis	Hynes, John E.	Minneapolis	Leavitt, H. H.	Minneapolis
Giebenhain, John N.	Minneapolis			Lebowski, Joseph A.	Minneapolis
Giere, Joseph C.	Minneapolis	Ide, Arthur W., Jr.	Minneapolis	Leenhuis, Andrew J.	Minneapolis
Giere, Richard W.	Minneapolis	Idstrom, Linneus G.	Minneapolis	Leiferman, Robert J.	Minneapolis
Gilbert, Maurice G.	Minneapolis	Indeck, Walter	Minneapolis	Leland, Harold R.	Minneapolis
Gingold, Benjamin A.	Minneapolis	Ingalls, Edgar G.	Minneapolis	Lenz, Otto A.	Minneapolis
G'vin, Richard B.	Minneapolis	Irvine, Harry G.	Minneapolis	Leonard, Lawrence J.	Minneapolis
Glaeser, John H.	Minneapolis	Iverson, Rolf M.	Minneapolis	Leonard, Samuel	Minneapolis
Glueck, Bernard C.	Minneapolis			Lerner, A. Ross	Minneapolis
Goez, Frederick C.	Minneapolis	Jacobson, Loren I.	Minneapolis	Lewis, F. John	Minneapolis
Goldberg, Isadore M.	Minneapolis	Jacobson, Wyman E.	St. Louis Park	Lewis, Joyce S., Jr.	Minneapolis
Goldman, Theodore I.	Minneapolis	Jay, Alan R.	Minneapolis	Lienke, Roger L.	Minneapolis
Golnder, Meyer Z.	Minneapolis	Jeffries, William L.	St. Louis Park	Lillehei, C. Walton	Minneapolis
Goltz, Robert W.	Minneapolis	Jensen, Harry C.	Minneapolis	Lillehei, Elmer J.	Robbinsdale
Good, Hof D.	Minneapolis	Jensen, Marius J.	Minneapolis		
Goodchild, William R.	Minneapolis	Jensen, Nathan K.	Minneapolis	Lind, Carl J., Jr.	Washington, D. C.
Gordon, Philip E.	Minneapolis	Jensen, Reynold A.	Minneapolis	Lindberg, Arthur N.	Minneapolis
Gordon, Sewell S.	St. Louis Park	Jerome, Bourne	Minneapolis	Lindberg, Arvid C.	Minneapolis
Grant, Suzanne	Minneapolis	Jerome, Elizabeth	Minneapolis	Lindberg, Vernon L.	Minneapolis
Gratzek, Frank R. E.	Minneapolis	Jeub, Robert P.	Minneapolis	Lindberg, Winston R.	Minneapolis
Gray, Royal C.	Minneapolis	Johnson, Angelo	Minneapolis	Lindblom, Maurice L.	Minneapolis
Green, Robert A.	St. Louis Park	Johnson, Arthur B.	Minneapolis	Lindemann, Charles E.	Minneapolis
Greenberg, Albert J.	Minneapolis	Johnson, August E.	Minneapolis	Lindgren, Russell C.	Minneapolis
Greenfield, Irving	Minneapolis	Johnson, Emil W.	Minneapolis	Lindner, Janus C.	Minneapolis
Greishiemer, Esther M.	Philadelphia, Pa.	Johnson, Frank E.	Minneapolis	Lindquist, Richard H.	Minneapolis
Grimes, Marian	Minneapolis	Johnson, Harry A.	Minneapolis	Linner, Gunnar	Minneapolis
Grimmell, Francis J.	Minneapolis	Johnson, James A.	Minneapolis	Llinner, Henry P.	Minneapolis
Gronvall, Paul E.	Minneapolis	Johnson, John W.	Minneapolis	Llinner, John H.	Minneapolis
Grotting, John K.	Minneapolis	Johnson, Julius	Minneapolis	Llinner, Paul W.	Minneapolis
Gullickson, Glenn, Jr.	Minneapolis	Johnson, Malcolm R.	Minneapolis	Lippman, Emanuel S.	Minneapolis
Gunlaugson, Frederick G.	Minneapolis	Johnson, Norman P.	Minneapolis	Lipschultz, Oscar	Minneapolis
Gushurst, Edward G.	Minneapolis	Johnson, Norton T.	Minneapolis	Litchfield, John T.	Minneapolis
Gustason, Harold T.	Minneapolis	Johnson, Reinald G.	Minneapolis	Litman, Abraham B.	Minneapolis
		Johnson, Reuben A.	Minneapolis	Lober, Paul H.	Minneapolis
Haberer, Helen R.	Minneapolis	Johnson, Richard S.	Minneapolis	Lofness, Stanley V.	St. Paul
Haberland, Lyle F.	Minneapolis	Johnson, Robert E.	Minneapolis	Lofteit, Rudolph C.	Minneapolis
Hagen, Kristofer	Richfield	Johnson, Roger S.	Wayzata	Loomis, Earl A.	Minneapolis
Hagen, Wayne S.	Minneapolis	Johnson, Ronald G.	Minneapolis	Lott, Frederick H.	Minneapolis
Haggard, G. D.	Minneapolis	Johnson, Youbert T.	Minneapolis	Lovett, Beatrice R.	Oak Terrace
Hall, Harry B.	Minneapolis	Jones, David G.	Minneapolis	Lowry, Elizabeth C.	Minneapolis
Hall, Wendell H.	Minneapolis	Jones, Herbert W., Jr.	Minneapolis	Lowry, Paul T.	Minneapolis
Hamel, Joseph J.	Minneapolis	Jones, Richard H.	Minneapolis	Lowry, Thomas	Minneapolis
Hannah, Hewitt B.	Minneapolis	Jones, William R.	Minneapolis	Lueck, Nathaniel W.	Minneapolis
Hansen, Cyril O.	Minneapolis	Joseph, Alexander	Minneapolis	Lufkin, Nathaniel H.	Minneapolis
Hansen, Erling W.	Minneapolis	Judd, Walter H.	Washington, D. C.	Lund, George W.	Minneapolis
Hansen, Olga S.	Minneapolis	Jurdy, Mitchell J.	Minneapolis	Lundberg, Ruth I.	Minneapolis
Hansen, Rollin M.	Minneapolis			Lundblad, Roy A.	Minneapolis
Hanson, Harlow J.	Minneapolis	Kadesky, Harold B.	Minneapolis	Lundblad, Stanley W.	Minneapolis
Hanson, Henry V.	Minneapolis	Kalin, Oscar T.	Minneapolis	Lundeberg, Karl R.	Minneapolis
Hanson, Malcolm B.	Minneapolis	Kallstad, Leonard L.	Wayzata	Lundquist, Virgil J. P.	Minneapolis
Hanson, Mark C. L.	Minneapolis	Kantar, Bruce L.	Minneapolis	Lynch, Matthew J.	Minneapolis
Hanson, William A. H.	Minneapolis	Kaplan, Harold A.	Minneapolis	Lyons, James H.	Minneapolis
Happe, Lawrence J.	Minneapolis	Kaplan, John J.	Minneapolis	Lyons, Michael W.	Minneapolis
Harris, Leon D.	Minneapolis	Karleen, Conrad I.	Minneapolis	Lysne, Henry	Minneapolis
Hartman, Evelyn E.	Minneapolis	Karlen, Markle	Minneapolis	Lysne, Myron	Minneapolis
Hast, Frederick M.	Minneapolis	Kaufman, Herschel J.	Minneapolis	Lysy, Anatol	Minneapolis
Hastings, DeForest R.	Minneapolis	Kelby, Gert M.	Minneapolis	Lyzenaga, Anton G.	Minneapolis
Hastings, Donald W.	Minneapolis	Kelly, Charles F.	Minneapolis		
Hauge, Erling T.	Minneapolis	Kelly, John P.	Minneapolis	McCaffrey, F. John	Minneapolis
Haugen, George W.	Minneapolis	Kennedy, Claude C.	Minneapolis	McCann, Eugene J.	Minneapolis
Haugen, John A.	Minneapolis	Kennedy, Jane F.	Minneapolis	McCannel, Malcolm A.	Minneapolis
Hauser, Donald G.	Minneapolis	Kerkhof, Arthur C.	Minneapolis	McCarthy, Donald	St. Paul
Hausen, George W.	Minneapolis	Kiesler, Frank, Jr.	Minneapolis	McCartney, James S.	Minneapolis
Havel, Robert J.	Minneapolis	King, Edgar A.	Minneapolis	McCormick, Donald P.	Minneapolis
Haven, Walter K.	Minneapolis			McDaniel, Orianna	Minneapolis
Hawkinson, Raymond P.	Minneapolis			McFarland, Arthur H.	Minneapolis
				McGandy, Robert F.	Minneapolis

# COUNTY SOCIETY ROSTER

McGeary, George E. Minneapolis  
McInerney, Maurice W. Minneapolis  
McKelvey, John L. Minneapolis  
McKenzie, Charles H. Minneapolis  
McKinlay, Chauncey A. Minneapolis  
McKinney, Frank S. Minneapolis  
McLaughlin, Byrd H. Minneapolis  
McMurtrie, William B. Minneapolis  
McNeil, John J. Minneapolis  
McPheeters, Herman O. Minneapolis  
McQuarrie, Irvine Minneapolis  
MacDonald, Daniel A. Minneapolis  
MacDonald, John W. Minneapolis  
MacKinnon, Donald C. Minneapolis  
Mach, Frank B. Minneapolis  
Maeder, Edward C. Minneapolis  
Maland, Clarence O. Minneapolis  
Mandel, Sheldon L. Minneapolis  
Mankey, James C. Minneapolis  
Mann, George A. Minneapolis  
Marking, George H. Minneapolis  
Martin, Frank E. Minneapolis  
Martin, George R. Minneapolis  
Martinson, Carl J. Wayzata  
Martinson, Elmer J. Wayzata  
Mattill, Peter M. Oak Terrace  
Mattson, Hamlin A. N. Minneapolis  
Mauder, Irving B. Minneapolis  
Maxeiner, Stanley R. Minneapolis  
Maxeiner, S. R., Jr. Minneapolis  
Meller, Robert L. Minneapolis  
Merkert, Charles E. Minneapolis  
Merkert, George L. Minneapolis  
Merrick, Charlotte T. St. Paul  
Meyer, Alvin J. Minneapolis  
Meyer, Ete L. Minneapolis  
Meyer, Robert J. Minneapolis  
Michael, Joseph C. Minneapolis  
Michel, Henry H. Minneapolis  
Michelson, Henry E. Minneapolis  
Mickelsen, Emma F. Minneapolis  
Miller, Arden L. Minneapolis  
Miller, Harold E. Minneapolis  
Miller, Hugo E. Minneapolis  
Miller, John C. Minneapolis  
Millett, D. Keith. Minneapolis  
Milton, John S. Minneapolis  
Minsky, Armen A. Minneapolis  
Mitby, Irving B. Minneapolis  
Mitchell, Berton D. Minneapolis  
Mitchell, Edward C. Minneapolis  
Mitchell, Mancel T. Minneapolis  
Mixer, Harry W. Minneapolis  
Moberg, Thomas D. Tacoma, Wash.  
Moe, John H. Minneapolis  
Moehn, John T. Minneapolis  
Moen, Johannes K., Jr. Minneapolis  
Monahan, Elizabeth S. Minneapolis  
Monson, Elmer M. Minneapolis  
Moore, Irvin H. Minneapolis  
Moorhead, Marie Minneapolis  
Moos, Daniel J. Minneapolis  
Mork, A. Harold Anoka  
Mork, Frank E. Anoka  
Morrison, Charlotte J. Minneapolis  
Mosser, Donn G. Minneapolis  
Mover, Leonard B. Minneapolis  
Mulholland, William M. Minneapolis  
Murphy, Edmund P. Minneapolis  
Muske, Marvin M. Minneapolis  
Musty, Nicholas J. Minneapolis  
Myers, Jay A. Minneapolis  
Myhre, James A. Minneapolis  
Naslund, Ames W. Minneapolis  
Neal, Joe M. St. Paul  
Neary, Richard P. Minneapolis  
Nelson, Bernette G. Minneapolis  
Nelson, Bernice A. Minneapolis  
Nelson, C. Barton Minneapolis  
Nelson, Carleton A. Minneapolis  
Nelson, Edward N. Minneapolis  
Nelson, Harvey Minneapolis  
Nelson, Lloyd S. Minneapolis  
Nelson, Maxine O. Minneapolis  
Nelson, Maynard C. Minneapolis  
Nelson, O. L. Norman. Minneapolis  
Nelson, Wallace L. Minneapolis  
Nerenberg, Samuel T. Minneapolis  
Nesbitt, Samuel Minneapolis  
Nesset, Lawren B. Minneapolis  
Nesset, William D. Minneapolis  
Neumeister, Charles A. Minneapolis  
Nice, Charles M. Minneapolis  
Noran, Axel S. N. Minneapolis  
Noran, Harold H. Minneapolis  
Nord, Robert E. Edina  
Nordin, Gustaf T. Minneapolis  
Nordland, Martin, Sr. Minneapolis  
Nordland, Martin, Jr. Minneapolis  
Noth, Henry W. Minneapolis  
Nuesse, William F. Minneapolis  
Nydhall, Malvin J. Minneapolis  
Nylander, Emil G. Minneapolis

O'Donnell, James E. Minneapolis  
O'Hanlon, John A. Minneapolis  
O'Phelan, E. Harvey. Minneapolis  
Oberg, Carl M. Minneapolis  
Olav, Olga Minneapolis  
Olaf, Paul G. Minneapolis  
Olson, E. George. Minneapolis  
Olson, Alton C. Minneapolis  
Olson, Carl J. Minneapolis  
Olson, C. Kent. Minneapolis  
Olson, Detlof M. Minneapolis  
Olson, Olof A. Minneapolis  
Olson, Philip A. Minneapolis  
Olson, Rolland A. Wayzata  
Oppen, E. Gerhard. Minneapolis  
Oppen, Melvin G. Wayzata  
Opstad, Earl T. Minneapolis  
Paal, Dwain J. Minneapolis  
Palen, Benjamin J. Minneapolis  
Papermaster, Theodore C. Minneapolis  
Park, Wilford E. Minneapolis  
Pattee, James J. Minneapolis  
Peluso, Charles R. Minneapolis  
Peppard, Thomas A. Minneapolis  
Perlman, Everett C. Minneapolis  
Perlman, Herschel L. Minneapolis  
Peteler, Jennings C. L. Minneapolis  
Petersen, Deane A. Minneapolis  
Petersen, Glenn L. Minneapolis  
Petersen, Peter C. Minneapolis  
Petersen, William E. Minneapolis  
Peterson, Alice H. Minneapolis  
Peterson, Henry Minneapolis  
Peterson, Herbert W. Minneapolis  
Peterson, Nordahl P. Minneapolis  
Peterson, Oliver H. Minneapolis  
Peterson, Palmer A. Minneapolis  
Peterson, Peter E. Minneapolis  
Peterson, Willard C. Minneapolis  
Petit, Julien V. Minneapolis  
Petit, Leon J. Minneapolis  
Pewters, John T. Minneapolis  
Peyton, William T. Minneapolis  
Phelps, Kenneth A. Minneapolis  
Plasha, Matthew K. Anoka  
Plass, Herbert F. R. Minneapolis  
Platou, Erling S. Minneapolis  
Pleisner, Karl W. Minneapolis  
Plimpton, Nathan C., Jr. Minneapolis  
Pohl, John F. M. Minneapolis  
Pollock, Anthony J. Minneapolis  
Pollock, David K. Minneapolis  
Polzak, Jacob A. Minneapolis  
Poppe, Frederick H. Minneapolis  
Potter, Robert B. Minneapolis  
Pratt, Fred J., Sr. Minneapolis  
Pratt, Fred J., Jr. Minneapolis  
Pren, Konald A. Minneapolis  
Preine, Irving A. Osseo  
Preston, Paul J. Minneapolis  
Price, William E. Minneapolis  
Priest, Robert E. Minneapolis  
Prim, Joseph A. Minneapolis  
Proffitt, William E. Minneapolis  
Proshek, Charles E. Minneapolis  
Quello, Robert O. Minneapolis  
Quiggle, Arthur B. Minneapolis  
Quist, Henry W., Sr. Minneapolis  
Quist, Henry W., Jr. Minneapolis  
Raile, Richard B. Minneapolis  
Ransom, H. Robert. Osseo  
Ratelle, Alexander E. Minneapolis  
Reader, Donald R. Minneapolis  
Redding, Foster K. Minneapolis  
Regnier, Edward A. Minneapolis  
Reif, Harold A. Minneapolis  
Reiley, Richard E. Minneapolis  
Remole, William D. Minneapolis  
Resch, Joseph A. Minneapolis  
Rice, Carl O. Minneapolis  
Rice, Frank B. Minneapolis  
Rice, Fred A. Minneapolis  
Richdorf, Lawrence F. Minneapolis  
Rieke, Wellington W. Wayzata  
Rigler, Leo G. Minneapolis  
Riordan, Elsie M. Minneapolis  
Risch, Ronald E. Minneapolis  
Rizer, Dean K. Minneapolis  
Rizer, Robert I. Minneapolis  
Robb, Edwin F. Minneapolis  
Robbins, Owen F. Minneapolis  
Roberts, Lewis J. Minneapolis  
Roberts, Stanley W. Minneapolis  
Roberts, William B. Minneapolis  
Robinson, Cortland O. Minneapolis  
Rock, William H. Minneapolis  
Rocknem, Robert E. Minneapolis  
Rockwell, Curtis V. Minneapolis  
Rodda, Fredk. C. Minneapolis  
Rodgers, Richard S. Minneapolis  
Romness, Kenneth B. Mound

\*† Rosander, Phyllis Minneapolis  
Rosenbaum, David L. Minneapolis  
Rosedahl, Frederick G. Minneapolis  
Rosenfeld, Abraham B. Minneapolis  
Rosenow, John H. Minneapolis  
Rosenwald, Reuben M. Anoka  
Ross, Alexander J. Minneapolis  
Rosen, Ralph X. Minneapolis  
Rotenberg, Robert J. Minneapolis  
Rothnem, Morris S. Minneapolis  
Rucker, William H. Minneapolis  
Rud, Norman E. Minneapolis  
† Rudell, Gustaf L. Minneapolis  
Rusteth, Arthur N. Minneapolis  
Rusten, Elmer M. Minneapolis  
Rydburg, Wayne C. Minneapolis  
St. Cyr, Harry M., Jr. Robbinsdale  
St. Cyr, Kenneth J. Robbinsdale  
Sadtler, Wm. P., Jr. Minneapolis  
Safirescu, Sorin R. Minneapolis  
Saliterman, Bernard I. Minneapolis  
Samuelson, Samuel Minneapolis  
Sandt, Karl E. Minneapolis  
Sawatzky, William A. Minneapolis  
Sborov, Abe R. Minneapolis  
Schaff, Frederick H. K. Minneapolis  
Schaar, Frances E. Minneapolis  
Schaefer, Kenneth F. Minneapolis  
Schaefer, Wesley G. Minneapolis  
Schaffhausen, Mildred Minneapolis  
† Scheldrup, N. H. Minneapolis  
Scherer, Leslie Raymond. Minneapolis  
Scherling, Sidney S. Minneapolis  
Schiele, Burtrum C. Minneapolis  
Schissel, Gregory A. Minneapolis  
Schmidt, W. Robert. Minneapolis  
Schmitt, S. C. Los Angeles, Calif.  
Schneck, Jack L. Waukesha, Wisconsin  
Schottler, Max E. Minneapolis  
Schroeder, Albert J. Minneapolis  
Schultz, Alvin L. Minneapolis  
Schultz, J. Harold. Minneapolis  
Schultz, Peter J. Minneapolis  
Schulze, William M. Minneapolis  
Schumacher, John W. Robbinsdale  
Schwartz, E. Robert. Minneapolis  
Schwartz, Virgil J. Minneapolis  
Scott, Horace G. Minneapolis  
Seaberg, John A. Minneapolis  
Seham, Max Minneapolis  
Seifert, Milton H. Excelsior  
Selck, Wolfgang. Minneapolis  
† Seljeskog, Sigsbee R. Minneapolis  
Semsch, Robert D. Minneapolis  
Shandorf, James F. Minneapolis  
Shaperman, Eva P. Minneapolis  
Shapiro, Sidney K. Minneapolis  
Sharp, David Minneapolis  
Sharpe, Wendell S. Minneapolis  
Shaw, Howard A. Minneapolis  
Shea, Andrew W. Minneapolis  
Sheldon, Warren N. Lorain, Ohio  
Sher, Lewis Minneapolis  
Sherman, Lloyd F. Minneapolis  
Shillington, Maurice A. Minneapolis  
Shronts, John F. Minneapolis  
† Siddell, Frank D. Butte, Montana  
Siegman, William C. Minneapolis  
Silas, Ralph M. Minneapolis  
Silver, John D. Minneapolis  
† Simons, Jalmar Minneapolis  
Simonson, Donald B. Minneapolis  
† Simpson, Ellery De W. Phoenix, Ariz.  
Sinykin, Melvin B. Minneapolis  
Sisterstein, David M. Minneapolis  
† Sierstman, Thomas J. Minneapolis  
† Sivertsen, Andrew Minneapolis  
† Sivertsen, Ivar Minneapolis  
† Skjold, Arthur C. Minneapolis  
Smiley, John T. Minneapolis  
Smisek, Frank M. Minneapolis  
Smith, Adam M. Minneapolis  
Smith, Archie M. Minneapolis  
Smith, Baxter A., Jr. Minneapolis  
Smith, Graham G. Minneapolis  
† Smith, Homer R. Minneapolis  
† Smith, Margaret I. Gardena, Calif.  
Smith, Norvin R. Willmar  
Smith, Theodore S. Minneapolis  
Smith, William T. Minneapolis  
Soderlund, Ragnar T. Minneapolis  
Solhaug, Samuel B. Minneapolis  
Solhaug, Samuel B., Jr. Minneapolis  
Solvason, Harold M. Minneapolis  
Spain, W. Thomas. Princeton, N. J.  
Spano, Joseph P. Minneapolis  
Spencer, Bernard J. Minneapolis  
Spink, Wesley W. Minneapolis  
Sponek, Kenath H. Minneapolis  
† Spratt, Charles N. Minneapolis  
Stahr, Aubrey C. Hopkins  
Stanford, Charles E. Minneapolis  
Staub, Henry P. Minneapolis

# COUNTY SOCIETY ROSTER

Stelter, Lloyd A. Minneapolis  
Stennes, John L. Minneapolis  
Stenstrom, Annette T. Minneapolis  
Sterrie, Norman A. Minneapolis  
Stewart, Marvin J. Minneapolis  
Stewart, Rolla I. Minneapolis  
Stoesser, Albert V. Minneapolis  
Stoltz, Robert C. Minneapolis  
Stomel, Joseph Vacaville, Calif.  
Stone, Norman F. Minneapolis  
Stone, Stanley P. Minneapolis  
Strachauer, Arthur C. Minneapolis  
Strickler, Jacob H. Minneapolis  
Strom, Gordon W. Minneapolis  
Stromgren, Delph T. Minneapolis  
Stromme, William B. Minneapolis  
Strunk, Clarence A. Minneapolis  
Sturges, Robert L. Minneapolis  
Subby, Walter Minneapolis  
Sukov, Marvin Minneapolis  
Sullivan, Raymond M. Minneapolis  
Sullivan, Robert E. Minneapolis  
Swain, Francis M. Minneapolis  
Swanson, Roy E. Minneapolis  
Sweetser, Horatio B. Minneapolis  
Sweetser, Theodore H., Sr. Minneapolis  
Sweetser, Theodore H., Jr. Minneapolis  
Switzer, Samuel E. Minneapolis  
Swendsen, Carl G. Graceville  
Sylverson, Jerome T. Minneapolis  
Tam, Ernest C. Minneapolis  
Tangen, George M. Minneapolis  
Taylor, Joseph H. Minneapolis  
Taylor, William E. Minneapolis  
Teeter, Richard R. Minneapolis  
Tenner, Robert J. Minneapolis  
Thomas, George E. Minneapolis  
Thomas, A. Boyd Minneapolis  
Thompson, Arthur Minneapolis  
Thompson, Willis H. Minneapolis  
Thorsen, David S. Minneapolis  
Thorson, Stuart V. Minneapolis

Thysell, Desmond M. Minneapolis  
Tichy, Fae Y. Pasadena, Calif.  
Tingdale, August C. Minneapolis  
Tinkham, Robert G. Minneapolis  
Tirud, Leonard A. Minneapolis  
Tobin, John D. Minneapolis  
Toon, Robert W. Minneapolis  
Trach, Benedict B. Minneapolis  
Trow, James E. Minneapolis  
Trow, William H. Minneapolis  
Trueman, Harold S. Minneapolis  
Tsai, Shih Hao. Oak Terrace  
Tucker, Richard C. Minneapolis  
Tudor, Richard B. Minneapolis  
Turnacliiff, Dale D. St. Paul  
Twomey, John E. Minneapolis  
Ude, Walter H. Minneapolis  
Ulrich, Henry L. Minneapolis  
Ulvestad, Harold S. Minneapolis  
Undine, Clyde A. Minneapolis  
Utendorfer, Robert W. Minneapolis  
Vermund, Halvor Minneapolis  
Vik, A. Elliott. Minneapolis  
Vitols, T. M. Minneapolis  
Wahlquist, Harold F. Minneapolis  
Waldron, Carl Wm. Hopkins  
Wall, Carl R. Minneapolis  
Walonic, Albert L. St. Louis Park  
Walsh, Francis M. Minneapolis  
Walsh, William T. Minneapolis  
Wangensteen, Owen H. Minneapolis  
Ward, Percy A. Minneapolis  
Waters, Alvin W. Minneapolis  
Watson, C. Gordon. Minneapolis  
Watson, Cecil J. Minneapolis  
Weaver, Myron Mc. Minneapolis  
Webb, Edgar A. Vancouver, B. C. Canada  
Webb, Roscoe C. Minneapolis  
Webber, Richard J. St. Louis Park  
Webber, Lowell W. Minneapolis  
Weisberg, Rapheal J. Minneapolis

Wendland, John P. Minneapolis  
Werner, George Minneapolis  
Weslowiki, Stanley P. Minneapolis  
West, Catherine C. Minneapolis  
Wetherby, Macnider Minneapolis  
Wexler, Harold M. Minneapolis  
Wheeler, Robert W. Minneapolis  
Whitacre, John C., II. St. Paul  
White, Asher A. Minneapolis  
White, S. Marx Minneapolis  
White, Willard D. Minneapolis  
Whitesell, Lloyd A. Minneapolis  
Widen, Willard F. Minneapolis  
Wilder, Kenneth W. Minneapolis  
Wilder, Robert L. Minneapolis  
Wilder, R. M. Jr. Minneapolis  
Wilken, Paul A. Minneapolis  
Willcutt, Clarence E. Phoenix, Arizona  
Williams, Robert New York, N. Y.  
Winchell, Paul Minneapolis  
Winther, Nora M. C. Minneapolis  
Wippmann, Frederic F. Minneapolis  
Witham, Carl A. Minneapolis  
Wittich, Frederick W. Minneapolis  
Wohlrahe, Arthur A. Minneapolis  
Wohlrahe, A. Cabot Minneapolis  
Wolf, Alfred H. Minneapolis  
Wolter, Frederick H. Minneapolis  
Wright, Thomas D. Minneapolis  
Wright, Wale S. Minneapolis  
Wright, William S. Minneapolis  
Wyatt, Oswald S. Minneapolis  
Wynne, Herbert M. N. Minneapolis  
Ylvisaker, Ragnvald S. Minneapolis  
Yoerg, Otto Wm. Minneapolis  
Yue, Wen V. Oak Terrace  
Zahrendt, O. Lewis Minneapolis  
Zarling, V. Richard Minneapolis  
Zaworski, Leo A. Minneapolis  
Zierold, Arthur A. Minneapolis  
Zinter, Ferdinand A. Minneapolis  
Ziskin, Thomas Minneapolis

## KANDIYOHI-SWIFT-MEEKER COUNTY MEDICAL SOCIETY

Kandiyohei, Swift, and Meeker Counties

Regular Meetings, third Thursday. Annual Meeting, third Thursday in November.

Number of Members—53

**President**  
SCHMELT, FREDERICK S. Litchfield  
**Secretary**  
OPSAHL, LAWRENCE J. Willmar  
Anderson, Richard E. Willmar  
Aulick, Ernest J. Belgrade  
Austrian, Sol St. Paul  
Bosland, Howard G. Willmar  
Bradley, Nelson J. Willmar  
Chunn, Stanley S. Willmar  
Daignault, Oscar Benson  
Danielson, Karl A. Litchfield  
Danielson, Lennox Litchfield  
Dille, Donald E. Igo, S. D.  
Douglas, Kenneth W. Sandstone  
Eberley, Tobe S. Benson  
Ellinger, Albert J. Willmar  
Fedor, Robert D. Litchfield  
Frederickson, Alice C. Willmar

\*†Frost, Edward H. Willmar  
Gaebe, Milton B. Clara City  
Giere, Silas W. Benson  
Gilman, Lloyd C. Willmar  
Griffin, R. P. Benson  
Guy, Jack A. New London  
Helwig, Karl, Jr. Kerkhoven  
Hinz, Walter E. Willmar  
Hodapp, Robert V. Willmar  
Holm, Donald F. Benson  
Houts, Joseph C. Willmar  
Jacobs, Douglas L. Willmar  
†Jacobs, Johannes C. Willmar  
Johnson, Marvin W. Dassel  
Kaufman, Edward J. Appleton  
†Lundblad, Robert M. Minneapolis  
McCarthy, Austin M. Willmar  
Macklin, William E., Jr. Willmar  
Meinert, John K. Willmar  
Michels, Roger P. Willmar

Nash, Eldore B. Eden Valley  
Nelson, Robert H. Benson  
†O'Connor, Daniel C. Eden Valley  
Olson, Gregory M. Litchfield  
Opsahl, Lawrence J. Willmar  
†Penhall, Fletcher W. Morton  
Peterson, Willard E. Willmar  
Porter, Oliver M. Atwater  
Proeschel, Ray K. Willmar  
Rorem, Joseph A. Appleton  
Ruchie, Warren H. Willmar  
Rygh, Harold N. Atwater  
Schnell, Frederick S. Litchfield  
†Solsen, Frederick N. S. Spicer  
Sorum, F. T. Willmar  
Sutherland, W. H. New London  
Thompson, Russell A. Cosmos  
Wagner, Norman W. Benson  
Wilmut, Cecil A. Litchfield  
Wilmut, Harold E. Litchfield

## LYON-LINCOLN COUNTY MEDICAL SOCIETY

Lyon and Lincoln Counties

Regular Meetings, six-week period in spring and fall. Annual Meeting, November.

Number of Members—25

**President**  
LEE, NORMAN J. Tracy  
**Secretary**  
Hedenstrom, Philip C. Marshall  
Bodaski, Albert A. Tyler  
Eckdale, John E. Marshall  
Ferguson, William C. Walnut Grove  
Ford, Burton C. Marshall  
†Gray, Frank D. Marshall

Hedenstrom, Philip C. Marshall  
Hermanson, Peter E. Hendricks  
†Hoidale, Andrew D. Tracy  
Johnson, C. Percy Tyler  
Kreuzer, Titus Marshall  
Larson, Milo H. Lake Benton  
Lee, Norman J. Tracy  
Monson, Leonard J. Canby  
Murphy, Joseph E. Marshall  
Myers, John W. Canby

Peterson, Kenneth A. Marshall  
Remberg, R. R. Tracy  
Smith, Lloyd A. Willmar  
Thill, Leonard J. Balaton  
Thompson, Carl O. Hendricks  
†Vadheim, Alfred L. Tyler  
†Valentine, Walter H. Tracy  
Wolstan, Simon D. Minnesota  
Workman, Warner G. Tracy  
Yaeger, Wilbert W. Marshall



## COUNTY SOCIETY ROSTER

### MCLEOD COUNTY MEDICAL SOCIETY

#### McLeod County

Regular Meetings, third Thursday of each month.

Annual Meeting, third Thursday in December.

#### Number of Members—20

<i>President</i>		
HUBERT, DAN W.	Hutchinson	
<i>Secretary</i>		
BRETZKE, CARL O.	Hutchinson	
Bretzke, Carl O.	Hutchinson	
Brink, Donald M.	Hutchinson	
Carroll, John J.	Winsted	
† Clement, John B.	Lester Prairie	

§ Floersch, Adrian J.	Glencoe
§ Griebie, Grant L.	Brownton
§ Howell, Milton	Glencoe
§ Huebert, Dan W.	Hutchinson
§ Jensen, Alvin M.	Brownton
§ Klima, William W.	Stewart
§ Lippmann, Elmer W.	Hutchinson
§ Neumaier, Arthur	Glencoe

§ Rayner, Ralph R.	Glencoe
§ Sahr, Walter G.	Hutchinson
† Scholpp, Otto W.	Hutchinson
§ Selmo, Joseph D.	Norwood
§ Sheppard, Charles G.	Hutchinson
§ Smith, George R.	Hutchinson
§ Smyth, John J.	Lester Prairie
§ Truesdale, Clark W.	Glencoe

### MOWER COUNTY MEDICAL SOCIETY

#### Mower County

Regular Meetings, last Thursday of every month. Annual Meeting, December.

#### Number of Members—37

<i>President</i>		
CRONWELL, BERNHARD J.	Austin	
<i>Secretary</i>		
ROSENTHAL, F. HAROLD	Austin	
Anderson, David P.	Austin	
Anderson, Harold J.	Austin	
Anderson, Wallace R.	Austin	
Barber, Tracy	Austin	
Cronwell, Bernhard J.	Austin	
Elliot, Harold J.	Hayfield	
Fisch, Herbert M.	Austin	
Flanagan, Leonard G.	Austin	
Grise, William B.	Austin	
Hagen, John D.	Austin	

† Havens, John G. W.	Austin
† Hegge, Olav H.	Austin
† Hegge, Rolv S.	Austin
† Hertel, Garfield E.	Austin
§ Hesla, Inman A.	Austin
§ Leck, Paul C.	Austin
§ Lommen, Peter A.	Austin
§ McKenna, Elizabeth M.	Austin
§ McKenna, Jay K.	Austin
§ Melzer, George R.	Lyle
† Miller, Herman	Reading
§ Morse, Norton P.	LeRoy
§ Nesse, J. A.	Austin
§ Osborn, Donald O.	Austin

§ Peterson, Stanley C.	Austin
§ Peterson, W. H.	Austin
§ Robertson, Paul A.	Austin
§ Rosenthal, F. Harold	Austin
§ Sargent, Edward C.	Austin
§ Schneider, Paul J.	Adams
§ Seery, Thomas M.	Austin
§ Sheedy, Chester L.	Austin
§ Stahl, George W.	Austin
§ Thomson, James M.	Austin
§ Twigg, Leo F.	Austin
§ Van Cleve, Horatio P.	Austin
§ Wilson, Franklin C.	Hampton, Va.
§ Wright, Robert R.	Austin

### NICOLLET-LE SUEUR COUNTY MEDICAL SOCIETY

#### Nicollet and Le Sueur Counties

Regular Meetings, not scheduled. Annual Meeting, December.

#### Number of Members—22

<i>President</i>		
CANFIELD, WAYNE W.	St. Peter	
<i>Secretary</i>		
LIMBECK, DONALD A.	Le Sueur	
§ Ager, Ernest A.	LeCenter	
† Aitkens, Herbert B.	LeCenter	
† Branham, Donald S.	Dear Park, Wis.	
† Canfield, Wayne W.	St. Peter	

§ Curtis, Rauen A.	LeCenter
† Ericson, Swan	Los Angeles, Calif.
† Gislason, Solvig T.	St. Peter
§ Gridley, John W.	Arlington
§ Grimes, Burton P.	St. Peter
§ Henry, Martin R.	St. Peter
§ Keith, Reinhard H.	Arlington
§ Lenander, Mellvin E.	St. Peter
§ Limbeck, Donald A.	Le Sueur

§ Nilson, Helmer J.	North Mankato
§ Olmanson, Edmund G.	St. Peter
§ Olson, Duane O.	Gaylord
§ Orwoll, Harold S.	St. Peter
§ Sjostrom, Lawrence E.	St. Peter
§ Sonnessyn, Nels N.	Le Sueur
§ Strathern, Carleton S.	St. Peter
† Strathern, Fred P.	Henderson
§ Traxler, J. Felix	North Mankato
§ Wohlrahe, Clarence F.	North Mankato

### OLMSTED-HOUSTON-FILLMORE-DODGE COUNTY MEDICAL SOCIETY

Regular Meetings, first Wednesday of odd numbered months.

Annual Meeting first Wednesday in November.

#### Number of Members—513

<i>President</i>		
BARGEN, J. ARNOLD	Rochester	
<i>Secretary</i>		
WELLMAN, WILLIAM E.	Rochester	
Aaro, Leonard A.	Rochester	
Achor, Richard W. P.	Rochester	
§ Adams, R. Charles	Rochester	
† Affeldt, Daniel E.	Kasson	
§ Aga, John H.	Rochester	
§ Ahlfs, Jacob J.	Caledonia	
§ Alexander, John D., Jr.	Rochester	
§ Allen, Edgar V. N.	Rochester	
† Ambert, Samuel	Rochester	
§ Andersen, Howard A.	Rochester	
§ Anderson, Mark J.	Rochester	
§ Anderson, Markham J., Jr.	Rochester	
§ Anderson, Milton W.	Rochester	
§ Baggenstoss, Archie H.	Rochester	
§ Bahn, Robert C.	Rochester	
§ Bain, Robert C.	Rochester	
§ Bair, Hugo L.	Rochester	
§ Baker, George S.	Rochester	
† Baker, Harry K.	Hayfield	
§ Baker, Hillier L., Jr.	Rochester	
† Balfour, Donald C.	Rochester	
§ Balfour, William M.	Rochester	
§ Banner, Edward Arthur	Rochester	
§ Bargen, J. Arnold	Rochester	
§ Barker, Nelson W.	Rochester	
§ Barnes, Arlie R., Jr.	Rochester	
§ Barry, Maurice J., Jr.	Rochester	
§ Bartholomew, Lloyd G.	Rochester	
§ Bastron, James A.	Rochester	
§ Bayard, Edwin D.	Rochester	
§ Beahr, Oliver H.	Rochester	

Beckett, Victoria Ling.	Detroit, Mich.
Behling, Frederick L.	Rochester
† Benedict, William L.	Rochester
§ Bennett, Warren A.	Rochester
§ Berge, Kenneth G.	Rochester
† Berkman, David M.	Oronoco
§ Bernatz, Philip E.	Rochester
§ Bickel, William Harold	Rochester
† Bigelow, Charles E.	Dodge Center
† Birkhead, Newton C.	Rochester
§ Black, B. Marden	Rochester
§ Blackburn, Charles M.	Rochester
† Bonnet, John D.	New Mexico
§ Bossard, John W.	Rochester
§ Botham, Richard James	Rochester
§ Bowers, Dorrance	Rochester
§ Boyd, David A., Jr.	Rochester
† Boyd, George K.	New York, N. Y.
§ Bozanich, Milosh S.	Rochester
§ Braasch, William F.	Rochester
§ Brandenburg, Robert O.	Rochester
§ Braun, Robert A.	Rochester
§ Broadbent, James C.	Rochester
§ Broders, C. W.	Rochester
§ Brown, Alex E.	Rochester
§ Brown, Henry A.	Rochester
§ Brown, Joe R.	Rochester
§ Brown, Philip W.	Rochester
§ Brown, Roland G.	Rochester
§ Brunsting, Louis A.	Rochester
§ Bruwer, Andre J.	Rochester
§ Buie, Louis A.	Rochester
§ Burgerman, Howard B.	Rochester
§ Burgerman, Arthur	Rochester
§ Burich, Harry F.	Rochester

§ Burke, Edmund C.	Rochester
§ Burroughs, John T.	Rochester
§ Butt, Hugh R.	Rochester
§ Cain, James Clarence	Rochester
§ Callahan, John A.	Rochester
§ Calvert, Wilson C.	Rochester
§ Campbell, Donald C.	Rochester
§ Cantrell, Glenn	Rochester
§ Carlson, Donald L.	Rochester
§ Carr, David T.	Rochester
§ Carver, Haddon McG.	Rochester
§ Childs, Donald S., Jr.	Rochester
§ Christensen, Norman A.	Rochester
§ Christianson, Bruce W.	Rochester
§ Christoferson, Kent W.	Rochester
§ Claggett, O. Theron	Rochester
§ Clark, Edward C.	Rochester
§ Clark, Leslie William	Spring Valley
§ Clifton, Theodore A.	Chattfield
§ Colby, N. Y., Jr.	Rochester
§ Comfort, Mandred W.	Rochester
† Compton, Russell F.	Rochester
§ Connolly, Daniel C.	Rochester
§ Cook, Roderick W., Jr.	Rochester
§ Cooley, Jack Crain	Rochester
§ Cooper, Talbert	Rochester
§ Corbin, Kendall B.	Rochester
§ Cottone, Francis J.	Rochester
§ Coventry, Markham B.	Rochester
† Craig, Richard M.	Rochester
§ Craig, Winchell McK.	Rochester
§ Crumbley, James J., Jr.	Tampa, Fla.
§ Culp, Ormond S.	Rochester
§ Dahlin, David C.	Rochester
§ Daly, David	Rochester



# COUNTY SOCIETY ROSTER

Daugherty, Guy Wilson.....	Rochester	Henderson, Edward D.....	Rochester	McLeod, John J., Jr.....	Rochester
Davis, Austin C.....	Rochester	Henderson, John W.....	Rochester	McSweeney, Austin J.....	Danville, Illinois
Davis, George D.....	Rochester	Henderson, Lowell.....	Rochester	Merritt, Wallace A.....	Rochester
Dearings, William H.....	Rochester	Henderson, Robert Earl.....	Rochester	Messer, James W.....	Rochester
Decker, Barry.....	Rochester	Hepper, Norman G.....	Rochester	Mevedring, Henry W.....	Rochester
Decker, David G.....	Rochester	Herbert, Edna E.....	Rochester	Miller, Roland D.....	Rochester
Devine, Kenneth D.....	Rochester	Hewitt, Edith S.....	Rochester	Miller, Ross H.....	Rochester
DeWeerd, James H.....	Rochester	Hewitt, Richard M.....	Rochester	Millikan, Clark H.....	Rochester
Dickinson, L. S.....	Rochester	Heyerdale, O. C.....	Rochester	Mills, Stephen D.....	Rochester
Diesner, Grant Roy.....	Rochester	Higgins, John A.....	Rochester	Moersch, Frederick P.....	Rochester
Dines, David E.....	Rochester	Hill, John Roger.....	Rochester	Moersch, Herman J.....	Rochester
Dixon, Claude F.....	Rochester	Hill, Richard Woolsey.....	Rochester	Moertel, Charles G.....	Rochester
Dockerty, Malcolm B.....	Rochester	Hines, Edgar A., Jr.....	Rochester	Montgomery, Hamilton.....	Rochester
Dodge, Henry W., Jr.....	Rochester	Hodgson, Corrin H.....	Rochester	Morgan, Edward R.....	Rochester
Donoghue, Francis Edmund.....	Rochester	Hodgson, John R.....	Rochester	Morlock, Carl G.....	Rochester
Douglass, Bruce E.....	Rochester	Holland, C. R.....	Rochester	Morrow, George W., Jr.....	Rochester
Doyle, James R.....	Rochester	Hollenhorst, Robert W.....	Rochester	Mudd, Robert H.....	Rochester
Drips, Della G.....	Oronoco	Holman, Colin B.....	Rochester	Mulder, Donald W.....	Rochester
Dry, Thomas J.....	Rochester	Horton, Bayard T.....	Rochester	Mussey, Mary E.....	Rochester
Dunn, Jack, Jr.....	Urbana, Ill.	Howell, Llewellyn.....	Rochester	Mussey, Robert D.....	Rochester
Dushane, James W.....	Rochester	Hunt, Arthur B.....	Rochester	Myers, Cortland, III.....	Rochester
Dyer, John Allen.....	Rochester	Hunte, James S., Jr.....	Rochester	Myers, Richard L.....	Selfridge Air Force Base, Michigan
Eaton, Lealdes M.....	Rochester	Ivins, John C.....	Rochester	Myers, Thomas T.....	Rochester
Edelmann, Robert B.....	Rochester	Jackman, Raymond J.....	Rochester	Myr, Theodore T.....	Rochester
Edwards, Jesse E.....	Rochester	Jackson, Sidney C.....	Rochester	Nehring, Jesse P.....	Preston
Elkins, Earl C.....	Rochester	James, Joseph M.....	Rochester	Nelson, William C.....	Rochester
Ellis, F. Henry.....	Rochester	Jarvis, Walter H., Jr.....	Rochester	Newnum, Raymond L.....	Rochester
Elstner, Howard L.....	Rochester	Johnson, Adelaide McF.....	Rochester	Nichols, Donald R.....	Rochester
Emmett, John L.....	Rochester	Johnson, Carl Eric.....	Rochester	Norris, Neil T.....	Caledonia
Emrud, Earl Richard.....	Rochester	Johnson, Einer W., Jr.....	Rochester	O'Keefe, Mathew E.....	Rochester
Erickson, Donald J.....	Rochester	Johnson, Ralph B.....	Lanesboro	O'Leary, Paul A.....	Rochester
Eser, Robert A.....	St. Charles, Illinois	Jones, Kocbliff U., Jr.....	Fairfield, Conn.	O'Shaughnessy, Edward.....	Camp Kilmer, N. J.
Estes, J. Earle.....	Rochester	Joyce, George M.....	Rochester	Odel, Howard M.....	Rochester
Eusterman, George B.....	Rochester	Judd, Edward Starr, Jr.....	Rochester	Olsen, Arthur M.....	Rochester
Evans, Harold W.....	Rochester	Juergens, John L.....	Rochester	Olson, Ernest A.....	Pine Island
Evarts, Arrah B.....	Rochester	Kearns, Thomas P.....	Rochester	Olson, Grant E.....	West Concord
Ewen, Edgar F.....	Rochester	Keating, Francis Raymond, Jr.....	Rochester	Onifer, Theodore M.....	Rochester
Faber, John E.....	Rochester	Keith, Haddow M.....	Rochester	Onsgard, L. Kenneth.....	Houston
Fahl, Mario Nestor.....	Rochester	Keith, Norman M.....	Rochester	Osborn, John E.....	Rochester
Failor, Harlan J.....	Rochester	Kemper, James W.....	Rochester	Owen, Charles A. J.....	Rochester
Faucett, Robert L.....	Rochester	Kennedy, Roger L. J.....	Rochester	Paris, Jaime.....	Rochester
Faulconer, Albert, Jr.....	Rochester	Kernohan, James W.....	Rochester	Parker, Harry L.....	Rochester
Feldmann, Floyd M.....	New York, N. Y.	Kiely, Joseph M.....	Rochester	Parker, Robert L.....	Rochester
Ferris, DeWard O.....	Rochester	Kierland, Robert R.....	Rochester	Parkhill, Edith M.....	Rochester
Figi, Frederick A.....	Rochester	Kilby, Ralph A.....	Rochester	Parkin, Thomas W.....	Rochester
Flor, Frank S.....	Rochester	Kirby, Thomas J., Jr.....	Rochester	Parsons, William B., Jr.....	Rochester
Foss, Edward Lehmann.....	Rochester	Kirklin, Byril R.....	Rochester	Patrick, Robert T.....	Rochester
Foul, William T., Jr.....	Rochester	Kirklin, John W.....	Rochester	Paulson, John A.....	Rochester
Frethem, Allen A.....	Rochester	Klass, Donald W.....	San Antonio, Texas	Pearce, Francis M., Jr.....	Rochester
Fricke, Robert E.....	Rochester	Knight, James Harry.....	Rochester	Pease, Gertrude L.....	Rochester
Gambill, Carl M.....	Rochester	Knutson, Lewis A.....	Spring Grove	Peak, Owen C.....	Rochester
Gambill, Earl E.....	Rochester	Koelsche, Giles A.....	Rochester	Pemberton, John.....	Rochester
Gardner, Gawinn B.....	Rochester	Kragh, Lyle V.....	Rochester	Perry, Harold.....	Rochester
Gardner, John U.....	Rochester	Kroborth, Frank J., Jr.....	Rochester	Peterman, Albert F.....	Rochester
Gastineau, Clifford F.....	Rochester	Krout, Robert M.....	Rochester	Peters, Gustavus A.....	Rochester
Gatchell, Frank G.....	Rochester	Krusen, Frank H.....	Rochester	Petersen, Magnus C.....	Rochester
Gaunt, William D.....	Rochester	Kuhn, Arthur J.....	Rochester	Petterson, George R.....	Mabel
Gee, Vernon Ray.....	Rochester	Kvale, Walter F.....	Rochester	Petter, John R.....	Fort Ord, Calif.
Geraci, Joseph Emil.....	Rochester	Lake, Clifford F.....	Rochester	Phalen, Patrick T.....	Rochester
Ghormley, Ralph K.....	Rochester	Langrall, Harrison M.....	Rochester	Phillips, Donald F.....	Rochester
Giffin, Herbert Z.....	Rochester	Law, William M.....	Rochester	Piper, Monte C.....	LaCanada, Calif.
Giffin, Mary E.....	Rochester	Lazarte, Jorge A.....	Rochester	Pittelkow, Robert B.....	Rochester
Gifford, R. W., Jr.....	Rochester	Leddy, Eugene T.....	Rochester	Polley, Howard F.....	Rochester
Ginsberg, Robert L.....	San Antonio, Texas	Lescoe, Richard J.....	Rochester	Pool, Thomas L.....	Rochester
Glew, William Bainbridge.....	Rochester	Ellington Air Force Base, Texas		Pougiales, Mary L. Price.....	Rochester
Glick, Dallas D.....	Rochester	Leuallen, Edmund C.....	Rochester	Powelson, Myron H.....	San Francisco, Calif.
Goehrs, Homer R.....	Rochester	Lillie, Harold I.....	Rochester	Pratt, George F.....	Rochester
Goldstein, Norman P.....	Rochester	Lillie, John C.....	Rochester	Pratt, Joseph Hyde, Jr.....	Rochester
Good, C. Allen.....	Rochester	Lipscomb, Paul R.....	Rochester	Prickman, Louis E.....	Rochester
Grace, Joseph B.....	Rochester	Litin, Edward M.....	Rochester	Priestley, James J.....	Rochester
Gray, Howard K.....	Rochester	Litzow, Thaddues J.....	Rochester	Pruitt, Raymond D.....	Rochester
Green, Paul A.....	Rochester	Lofgren, Karl A.....	Rochester	Pugh, David G.....	Rochester
Greene, Laurence F.....	Rochester	Logan, Archibald H.....	Rochester	Purnell, Don C.....	Rochester
Griffiths, Edward K.....	St. Paul	Logan, George B.....	Rochester	Ralston, Donald E.....	Rochester
Grindlay, John H.....	Rochester	Lorton, William L.....	Rochester	Randall, Lawrence M.....	Rochester
Gross, John B.....	Rochester	Love, J. Grafton.....	Rochester	Randall, Raymond V.....	Rochester
Habein, Harold C.....	Rochester	Lundsten, Lloyd R.....	Rochester	Rasmussen, Waldemar C.....	Rochester
Habein, Harold C., Jr.....	Rochester	Lundy, John S.....	Rochester	Reed, William B.....	Rochester
Hagedorn, Albert Berner.....	Wiesbaden, Germany	Lynn, Thomas E.....	Rochester	Reifsnider, William Henry, III.....	Rochester
Haines, Samuel F.....	Rochester	MacCarty, Collin S.....	Rochester	Reitemeyer, Richard J.....	Rochester
Hallberg, Olav Erik.....	Rochester	MacCarty, William C.....	Rochester	ReMine, William H., Jr.....	Rochester
Hallenbeck, Dorr F.....	Rochester	MacLean, Alexander.....	Rochester	Reo, George L.....	Rochester
Hallenbeck, George A.....	Rochester	Madalin, Herbert E.....	Rochester	Rice, Roberta G.....	Minneapolis
Hanlon, David G.....	Rochester	Magath, Thomas B.....	Rochester	Rickman, James H.....	Rochester
Hanson, Norbert Orris.....	Rochester	Magness, John L.....	Rochester	Ringer, Merritt G., Jr.....	Rantoul, Illinois
Hardy, William M.....	Rochester	Manger, William M.....	Rochester	Risser, Alden F.....	Stewartville
Hargraves, Malcolm M.....	Rochester	Mankin, Harold T.....	Rochester	Roberts, Frank E.....	Rochester
Harrington, Stuart W.....	Rochester	Martin, George M.....	Rochester	Robinson, Hugh P.....	Rochester
Harris, Lloyd E.....	Rochester	Martin, William J.....	Rochester	Rogne, William Gustav.....	Spring Grove
Hartman, Howard R.....	Rochester	Masson, Duncan M.....	Rochester	Rome, Howard P.....	Rochester
Hartridge, Virginia B.....	Rochester	Masson, James C.....	Rochester	Rooke, E. D.....	Rochester
Hayles, Alvin Beasley.....	Rochester	Masson, James K.....	Rochester	Rothwell, Walter S.....	Rochester
Heck, Frank J.....	Rochester	Mathieson, Don R.....	Rochester	Rovelstad, Randolph A.....	Rochester
Hendrick, William L.....	Rochester	Matthews, Louis B., Jr.....	Rochester	Rucker, Charles W.....	Rochester
Heilman, Dorothy M. H.....	San Diego, California	Mayne, John G.....	Rochester	Rushton, Joseph G.....	Rochester
Heilman, Fordyce R.....	Rochester	Mavo, Charles William.....	Rochester	Ryan, Robert Frank.....	Rochester
Helland, John W.....	Spring Grove	McBean, J. B.....	Rochester	Ryneason, Edward H.....	Rochester
Helmholz, Henry F.....	Rochester	McConahey, William M., Jr.....	Rochester	Sabin, Frederick Chapman.....	Rochester
Hempstead, Bert E.....	Rochester	McDonald, John R.....	Rochester	Salassa, Robert M.....	Rochester
Hench, Philip S.....	Rochester	McIlhany, Mary Lou.....	Wheeler, Texas	Sanford, Arthur H.....	Rochester
		McKaig, Carl B.....	Pine Island		
		McKay, John W.....	Rochester		
		McKay, Walter E.....	Altadina, Calif.		

# COUNTY SOCIETY ROSTER

Sauer, William G.	Rochester	Soule, Edward H.	Rochester	Wakim, Khalil G.	Rochester
Sayre, George P.	Rochester	Spear, Harold C.	New Haven, Conn.	Walters, Waltman	Rochester
Scanlon, Paul W.	Rochester	Sperr, Michael P., Jr.	Rochester	Ward, Louis E.	Rochester
Schaeffer, Joseph C.	Rochester	Sprague, Randall G.	Rochester	Watkins, Charles H.	Rochester
Schirger, Alexander	Rochester	Stauffer, Maurice H.	Rochester	Watkins, Lee G., Jr.	Rochester
Schmidt, Herbert William	Rochester	Stein, Harold A.	Rochester	Watson, Eleanor J.	Rochester
Schneider, James A.	Rochester	Steinbiller, Richard M.	Rochester	Watson, John R.	Rochester
Scholz, Donald A.	Rochester	Steinmetz, Rodney D.	Rochester	Waud, Robert E.	Rochester
Schreiner, Leon H.	Rochester	Stevens, Grant M.	Rochester	Waugh, John McM.	Rochester
Sciarras, Paschal A.	Rochester	Stickney, J. Minott.	Rochester	Weber, Harry M.	Rochester
Scimeca, William B.	Rochester	Stillwell, George G.	Rochester	Weed, Lyle A.	Rochester
Scott-Miller, James R.	Rochester	Stillwell, George K.	Rochester	Weeks, Richard E.	Rochester
Scudamore, Harold H.	Rochester	Storsteen, Oliver M.	Rochester	Weiner, Alan D.	Rochester
Seay, James Elbert, III. Big Stone, Texas		Stroebel, Charles F., Jr.	Rochester	Weir, James F.	Rochester
Sebrechts, Paul.	Great Lakes, Illinois	Stuhler, Louis G.	Rochester	Welch, John S.	Rochester
Selby, John B.	Rochester	Sware, Gerhart T.	Rochester	Wellman, William E.	Rochester
Seldon, Thomas H.	Rochester	Svien, Hendrik J.	Rochester	Wente, Harold A.	Rochester
Shick, Richard M.	Rochester	Symmonds, Richard E.	Rochester	Westrup, John E.	Lanesboro
Shields, Jack W.	Rochester	Thompson, Gershom J.	Rochester	Whisnant, Jack P.	Rochester
Siekert, R. G.	Rochester	Thompson, Murray C.	Rochester	Wilder, Russell M.	Rochester
Silver, Arthur W.	Southbridge, Mass.	Tillisch, Jan H.	Rochester	Willer, Stanley H.	Rochester
Simmons, William H.	Lexington, Ky.	Traynor, Mack V., Jr.	Rochester	Williams, Henry L.	Rochester
Simonton, Kinsey M.	Rochester	Troup, Richard H.	Rochester	Wilson, Robert B.	Rochester
Skaug, Harold M.	Chatfield	Turner, John Cooper, Jr.	Rochester	Wilson, Viktor O.	Rochester
Slocumb, Charles H.	Rochester	Uihlein, Alfred	Rochester	Windsheim, John H.	Rochester
Smid, Arthur C.	Rochester	Ulrich, Christian A.	Rochester	Winn, William E., Jr.	Rochester
Smith, Frederick L.	Rochester	Underdahl, Laurence O.	Rochester	Winter, Malcolm D., Jr.	Rochester
Smith, Harry L.	Rochester	Uppiker, Edwin H., II.	Rochester	Wollaeger, Eric E.	Rochester
Smith, John L.	Rochester	Utz, David C.	Rochester	Woltman, Henry Wm. F.	Rochester
Smith, Lucian A.	Rochester	Van Herik, Martin	Rochester	Wood, Harry G.	Rochester
Smith, Meredith P.	Rochester	Vandever, Harry W.	Rochester	Woodington, George F.	Altoona, Wisc.
Smith, Reginald A.	Rochester	Vaughn, Louis D.	Rochester	Woodward, Edward, Jr.	Rochester
Smith, Ross H., Jr.	Rochester	Verby, John E.	Rochester	Woolner, Lewis B.	Rochester
Smith, William George.	Rochester	Virnig, Hildegard J.	Caledonia	Wuest, John H.	Rochester
Sommerville, Robert L.	Rochester	Vreeland, Oliver H.	Rochester	Young, Henry H.	Rochester
Soshea, John W.	Rochester	Wagoner, James M.	Harmony	Young, John W.	Rochester
		Wakefield, Elmer G.	Rochester	Zimmer, J. F.	Rochester

## PARK REGION DISTRICT AND COUNTY MEDICAL SOCIETY

Douglas, Grant, Otter Tail, Wilkin Counties

Regular Meetings, last Wednesday, even numbered months.

Annual Meeting, December

Number of Members—63

<b>President</b>		Hanson, Everett G.	New York Mills	O'Brien, Louis T.	Breckenridge
<b>Secretary</b>		Hanson, LeRoy W.	Pelican Rapids	Ostergaard, Erling	Evansville
CARLSON, CARL E.	Alexandria	Heegaard, William G.	Alexandria	Parson, E. Lillian B.	Elbow Lake
SHAWER, WARD	Fergus Falls	Heiberg, Emmett A.	Fergus Falls	Parson, Lester R.	Elbow Lake
Arndt, Harry W.	Detroit Lakes	Helseth, Hovald K.	Pelican Rapids	Patterson, William L.	Fergus Falls
Baker, Jeannette L.	Fergus Falls	Hon, Leong Y. W.	North Chicago, Ill.	Paulson, Theodore S.	Fergus Falls
Baker, Norman H.	Fergus Falls	Hunt, William	Fergus Falls	Perkins, Douglass E.	Alexandria
Blakey, Adam R.	Osakis	Jacobson, Clifford W.	Breckenridge	Reinhardt, James H.	Alexandria
Boline, Clifford A.	Battle Lake	Kevern, Jay L.	Henning	Rockwood, Philo H.	Fergus Falls
Boysen, Peter	Bemidji	Kippen, Neil	Breckenridge	Sanderson, David J.	Fergus Falls
Cain, James H.	Hoffman	Korda, Henry A.	Pelican Rapids	Satersmoen, Theodore	Pelican Rapids
Carlson, Carl E.	Alexandria	Larson, Donald	St. Paul	Sather, Edgar R.	Alexandria
Clifford, George W.	Alexandria	Leibold, Herbert H.	Parkers Prairie	Schamber, Walter F.	Parkers Prairie
Combacker, Leon C.	Fergus Falls	Lewis, Charles W.	Henning	Schoeneberger, P. B.	Perham
Daehlin, Rolf.	Fairchild, Wash.	Love, Frederick A.	Carlos	Sethre, Arthur E.	Fergus Falls
DeKruif, Hendrik	Fergus Falls	Lund, Carl J.	Fergus Falls	Shaver, Ward	Fergus Falls
Doms, Vernon A.	Elbow Lake	Mahowald, Aloys	Fergus Falls	Sommerness, M. Duane	Fergus Falls
Emerson, Edwin E.	Osakis	Miller, William Anthony	New York Mills	Stemsrud, Harold L.	Alexandria
Estrem, Ralph L.	Fergus Falls	Mortensen, Nels G.	Minneapolis	Sutton, Harris R.	Hoffman
Estrem, Robert D.	Fergus Falls	Mouritsen, Glenn J.	Fergus Falls	Tanquist, Edwin J.	Alexandria
Geiser, Peter M.	Alexandria	Naegeli, Frank	Fergus Falls	Warner, James F.	Perham
Hamlon, John S.	Fergus Falls	Nelson, Roy A.	Fergus Falls	Wasson, Loren F.	Alexandria
		Nelson, Wilburn O. B.	Fergus Falls	Williams, Winfield T.	Fergus Falls
				Wray, William E.	Breckenridge

## RAMSEY COUNTY MEDICAL SOCIETY

Ramsey County

Regular Meetings, last Monday each month except June, July, August.

Annual Meeting, last Monday in January.

Number of Members—506

<b>President</b>		Bacon, Donald K.	St. Paul	Bernier, M. J.	North St. Paul
<b>Secretary</b>		Baer, Walter	St. Paul	Bernstein, William C.	St. Paul
RITT, ALBERT E.	St. Paul	Balcome, Milton M.	St. Paul	Bick, Joseph F.	St. Paul
GIBBS, EDWARD C.	St. Paul	Barnett, Joseph M.	St. Paul	Binger, Henry E.	Phoenix, Ariz.
<b>Executive Secretary</b>		Baronofsky, Ivan D.	St. Paul	Black, Earl J.	St. Paul
OLSON, MRS. ELEANOR	St. Paul	Barness, Nellie O. N.	St. Paul	Bock, Rolland A.	St. Paul
Adair, Albert F., Jr.	St. Paul	Bauer, Eugene L.	St. Paul	Boeckmann, Egil	St. Paul
Ahrens, Albert E.	St. Paul	Beals, Hugh	LaJolla, Calif.	Bolender, Harold L.	St. Paul
Ahrens, Robert M.	St. Paul	Beck, Charles J.	North St. Paul	Bongio, Frank J.	St. Paul
Alden, John F.	St. Paul	Beech, Raymond H.	St. Paul	Borg, Joseph F.	St. Paul
Ambrus, Laszlo	New York, N. Y.	Beek, Harvey O.	St. Paul	Bouma, Lewis R.	St. Paul
Amerongen, W. W.	St. Paul	Beer, John J.	St. Paul	Bouthilet, Florence J.	St. Paul
Arnquist, Andrew S.	St. Paul	Bell, Charles C.	St. Paul	Brand, George D.	St. Paul
Arny, Frederick P.	St. Paul	Bellomo, James L.	St. Paul	Bray, Elwyn R.	St. Paul
Arzi, Philip K.	St. Paul	Benepe, James C.	St. Paul	Briggs, John F.	St. Paul
Aurelius, J. Richards.	St. Paul	Bennon, P. H.	Isaway, Montana	Broadie, Thomas E.	St. Paul
Ausman, Duane R.	St. Paul	Benthack, Elaine M.	St. Paul	Brodie, Walter D.	St. Paul
Babb, Frank S.	St. Paul	Bentley, Norman P.	St. Paul		

# COUNTY SOCIETY ROSTER

† Brown, John C.	Los Gatos, Calif.	Gibbs, Edward C.	St. Paul	Larson, Martin L.	St. Paul
Buckley, J. J.	St. Paul	Gillespie, Delmar R.	St. Paul	Laszewski, Franz von Zelberschwecht	St. Paul
Bulinski, Theodore J.	St. Paul	† Gilsdorf, Donald A.	St. Paul	Lax, Morris H.	St. Paul
Burch, Edward P., II	St. Paul	† Gleason, Wallace A.	St. Paul	† Leahy, Bartholomew	St. Paul
Burch, Frank E.	St. Paul	† Goldsmith, Joseph W.	St. Paul	† Leavenworth, Richard O., Sr.	St. Paul
Burklund, Edwin C.	St. Paul	† Goltz, Edward V.	St. Paul	Leavenworth, Richard O., Jr.	St. Louis Park
Burlingame, David A.	St. Paul	† Grant, Hendrie W.	St. Paul	Leick, Richard M.	St. Paul
Burmeister, Richard O.	St. Paul	† Gratzek, Thomas	St. Paul	Leitch, Archibald	St. Paul
Burns, Robert M.	St. Paul	† Grau, R. K.	St. Paul	† Lepak, John A.	St. Paul
Burton, Carl G.	St. Paul	† Gray, Edward F.	White Bear Lake	† Lerche, William	Cable, Wisc.
† Bush, Robert P.	Ft. Benning, Ga.	† Hagen, Paul S.	St. Paul	† Leven, N. Logan	St. Paul
† Busher, Herbert H.	St. Paul	† Hakanson, Erick Y.	St. Paul	† Leverenz, Carleton W.	St. Paul
Cain, Clark L.	St. Paul	† Hall, Barnard	St. Paul	† Levin, Bert G.	St. Paul
Calin, Stanford H.	St. Paul	† Hammes, Ernest M., Sr.	St. Paul	† Levitt, George X.	St. Paul
Callahan, Francis F.	St. Paul	† Hammes, Ernest M., Jr.	St. Paul	† Lick, Charles L.	St. Paul
Cameron, Dale C.	St. Paul	† Hannon, Donald W.	St. Paul	† Lick, Louis C.	St. Paul
Canine, James L.	So. St. Paul	† Harbaugh, John T.	St. Paul	† Lick, William J., Jr.	St. Paul
Carley, Walter A.	St. Paul	† Harmon, Gaius E.	St. Paul	† Lien, Richard J.	St. Paul
Cedarleaf, Cherry B.	Mahtomedi	† Hartfield, William F.	St. Paul	† Lightbourn, Edgar L.	Hastings
† Chadbourn, Charles R.	St. Paul	† Hartig, Marjorie	St. Paul	† Lilleberg, Norbert J.	St. Paul
† Chatterton, Carl C.	St. Paul	† Hartley, Everett C.	St. Paul	† Lindell, Robert	St. Paul
† Christensen, Mentor	St. Paul	† Hauser, Victor P.	St. Paul	† Lippman, Hyman S.	St. Paul
† Christensen, Philip D.	St. Paul	† Hayes, Albert F.	St. Paul	† Loken, Selmer M.	St. Paul
† Christiansen, Andrew	St. Paul	† Heck, William W.	St. Paul	† Lowe, Earl R.	So. St. Paul
† Clark, Henry B., Jr.	Minneapolis	† Hedenstrom, Frank G.	St. Paul	† Lowe, Thomas A.	So. St. Paul
Cochrane, Byron B.	St. Paul	† Heilig, William R.	St. Paul	† Lundholm, Arthur M.	St. Paul
Coddon, Walter D.	St. Paul	† Henderson, Arthur J. G. No.	St. Paul	† Lynch, Francis W.	St. Paul
Cohen, Ellis N.	St. Paul	† Hengstler, William H.	St. Paul	† McCabe, James S.	St. Paul
Colby, Woodward L.	St. Paul	† Hensel, Charles N.	St. Paul	† McCain, Donovan L.	St. Paul
Cole, Wallace H.	St. Paul	† Herman, Samuel M.	St. Paul	† McCarthy, Joseph J.	St. Paul
† Coleman, John B.	St. Paul	† Heron, Roy C.	St. Paul	† McClanahan, James H.	White Bear Lake
† Collie, Henry G.	St. Petersburg, Fla.	† Herrmann, Edgar T.	St. Paul	† McClanahan, Thomas S.	White Lake
† Connolly, Coleman J.	St. Paul	† Hertz, Myron J.	St. Paul	† McClellan, Robert J.	St. Paul
† Connolly, Joseph P.	So. St. Paul	† Hilger, Andrew W.	St. Paul	† McCloud, Charles N.	St. Paul
† Connor, Charles E.	St. Paul	† Hilger, Jerome A.	St. Paul	† McEwan, Alexander	St. Paul
† Cook, C. Kenneth	St. Paul	† Hilger, Laurence D.	St. Paul	† McGroarty, Brian J.	St. Paul
† Cooper, Charles C.	St. Paul	† Hilker, Marcus D.	St. Paul	† McKenzie, Eva E.	St. Paul
† Coseriu, Vasile G.	St. Paul	† Hiniker, Louis P.	St. Paul	† McNeill, J. A.	St. Paul
† Countryman, Roger S.	St. Paul	† Hochfizer, John J.	St. Paul	† Mackoff, Sam M.	Phoenix, Ariz.
† Craig, David M.	St. Paul	† Hodgson, Jane E.	St. Paul	† Madland, Robert S.	St. Paul
† Critchfield, Lyman R.	St. Paul	† Holcomb, O. William	St. Paul	† Malerich, J. Anthony	St. Paul
† Crowley, James H.	St. Paul	† Hollinshead, W. H.	St. Paul	† Malerich, J. Anthony, Jr.	St. Paul
† Crudo, Vincent D.	St. Paul	† Holmen, Robert W.	St. Paul	† Marks, Roger W.	St. Paul
† Crump, James D.	St. Paul	† Holt, John E.	St. Paul	† Martin, Dwight L.	St. Paul
† Galligan, John M.	St. Paul	† Hopkins, G. Wendell	St. Paul	† Martineau, Joseph L.	St. Paul
† Culver, L. G.	St. Paul	† Howard, Merrill A.	St. Paul	† Mateo, Guillermo	St. Paul
† Davis, Edward V.	St. Paul	† Howard, Willard S.	St. Paul	† Matthews, James H.	Minneapolis
† Dawson, James R.	St. Paul	† Howe, Newell W.	St. Paul	† Mazzitello, William F.	St. Paul
† Decker, Charles H.	St. Paul	† Hullsieck, Harold E.	St. Paul	† Meade, John R.	St. Paul
† Derauf, Benjamin I.	St. Paul	† Hullsieck, Richard B.	St. Paul	† Mears, Burtis J.	St. Paul
† Deters, Donald C.	St. Paul	† Hunter, Murray H.	Farmington	† Medelman, John P.	St. Paul
† Dickson, Thomas H.	St. Paul	† Hunter, Samuel W.	St. Paul	† Melancon, Joseph F.	St. Paul
† Drake, Carl B.	St. Paul	† Hurwitz, Milton M.	St. Paul	† Menold, William F.	St. Paul
† Dunn, James N.	St. Paul	† Husebye, Kield O.	St. Paul	† Mermer, Thomas B.	Faribault
† Dunn, Robert C.	St. Paul	† Ide, Arthur W.	White Bear Lake	† Merrick, Robert L.	St. Paul
† Earl, George A.	St. Paul	† Ikeda, Kano	St. Paul	† Meyerding, Edward A.	St. Paul
† Earl, John R.	St. Paul	† Ingerson, Carl A.	St. Paul	† Michienzi, Leonard J.	St. Paul
† Edwards, Joseph W.	St. Paul	† Jackson, William C.	St. Paul	† Midboe, Gilbert	St. Paul
† Edwards, Lloyd G.	St. Paul	† James, Ellery M.	St. Paul	† Miller, Albert G.	St. Paul
† Edwards, Thomas J.	St. Paul	† James, John W.	St. Paul	† Miller, William T.	St. Paul
† Eginton, Charles T.	St. Paul	† Janssen, Martin E.	St. Paul	† Miller, Z. R.	St. Paul
† Ely, Orriman S.	So. St. Paul	† Jarvis, Bruce W.	St. Paul	† Milnar, Frank J.	St. Paul
† Emerson, Edward C.	St. Paul	† Jarvis, Charles W.	St. Paul	† Mintz, Charles M.	St. Paul
† Emmons, R. W.	St. Paul	† Jarvis, Marilyn A.	St. Paul	† Misler, Charles J.	St. Paul
† Endress, Edward K.	St. Paul	† Jastram, Rupert M.	St. Paul	† Moga, John A.	St. Paul
† Enroth, Oscar E.	St. Paul	† Jesion, Joseph W.	Pine River	† Monahan, Robert H.	St. Paul
† Ernest, George C. H.	St. Petersburg, Fla.	† Johanson, Waldemar G.	St. Paul	† Mooney, Robert D.	St. Paul
† Ersfeld, Murray P.	St. Paul	† Johnson, Carl E.	St. Paul	† Moquin, Marie A.	St. Paul
† Eshelby, E. C.	St. Paul	† Johnson, Carolyn A.	St. Paul	† Moren, J. Adelaide	St. Paul
† Farkas, John V.	St. Paul	† Johnson, Herbert W.	St. Paul	† Moriarty, Berenice	St. Paul
† Fee, John G.	St. Paul	† Johnson, Morris B.	St. Paul	† Moriarty, Cecile R.	St. Paul
† Feinberg, Milton	St. Paul	† Johnson, R. J.	St. Paul	† Muller, A. Eugene	North St. Paul
† Felder, Davitt A.	St. Paul	† Jones, E. Mendelsohn	St. Paul	† Mundahl, Harold R.	St. Paul
† Felton, Arthur J.	St. Paul	† Kamman, Gordon R.	St. Paul	† Murphy, Jack T.	St. Paul
† Fesler, Harold H.	St. Paul	† Kaplan, David H.	St. Paul	† Nash, Leo A.	St. Paul
† Field, Anthony H.	Farmington	† Karon, Irvine M.	St. Paul	† Neibergs, Lidia	St. Paul
† Fifer, William J.	St. Paul	† Kasper, Eugene M.	St. Paul	† Neibergs, Pauls	St. Paul
† Fink, Daniel L.	St. Paul	† Katz, Louis J.	Long Beach, Calif.	† Nelson, Loren E.	St. Paul
† Fischer, Robert F.	St. Paul	† Keefe, Rolland E.	St. Paul	† Nelson, Louis A., Sr.	St. Paul
† Fisher, Dan W.	St. Paul	† Kelly, James H.	St. Paul	† Nelson, Louis A., Jr.	St. Paul
† Flanagan, Harold F.	St. Paul	† Kelly, John W.	St. Paul	† Nimlos, Kenneth O.	St. Paul
† Flannery, Hubert F.	St. Paul	† Kelsey, Chauncey M.	St. Paul	† Nimlos, Lenore O.	St. Paul
† Flatt, John B.	St. Paul	† Kenefick, Emmett V.	St. Paul	† Noble, John F.	St. Paul
† Flom, Reynold P.	St. Paul	† Kenyon, Thomas J.	St. Paul	† Noble, J. Lawrence	St. Paul
† Flynn, L. L., Jr.	St. Paul	† Kesting, Herman	St. Paul	† Norman, David D.	St. Paul
† Fogarty, Charles W., Sr.	St. Paul	† King, George L.	Hudson, Wisc.	† Nuebel, Charles J.	St. Paul
† Fogarty, Charles W., Jr.	St. Paul	† Klein, Henry N.	St. Paul	† Nye, Katherine A.	St. Paul
† Fogelberg, Emil J.	St. Paul	† Knutson, Gerhard E.	St. Paul	† Nye, Lillian L.	St. Paul
† Foley, Frederic E. B.	St. Paul	† Knutson, Robert C.	St. Paul	† O'Brien, J. C.	St. Paul
† Forsythe, James R.	St. Paul	† Kodres, Nina	St. Paul	† O'Connor, Loren J.	St. Paul
† Fox, LeRoy J.	St. Paul	† Koza, Donald W.	St. Paul	† O'Kane, Thomas W.	St. Paul
† Freeman, Charles D., Jr.	St. Paul	† Krezowski, Thomas K.	St. Paul	† O'Malley, Valentine	St. Paul
† Freeman, Gerald L.	St. Paul	† Kugler, Alex A.	St. Paul	† O'Reilly, Bernard E.	St. Paul
† Freidman, Louis L.	St. Paul	† Kuske, Albert W.	St. Paul	† Ockuly, Orville	St. Paul
† Fritz, Wallace L.	St. Paul	† Kuske, Bradley W.	St. Paul	† Ogden, Warner	St. Paul
† Froats, Charles W.	St. Paul	† Kuske, Douglas R.	St. Paul	† Ohage, Justus	St. Paul
† Fuller, Benjamin F.	St. Paul	† Kvitrud, Gilbert	St. Paul	† Olsen, Ralph L.	St. Paul
† Galligan, John J.	St. Paul	† Lannin, Bernard G.	St. Paul	† Olson, Charles A.	St. Paul
† Garbecht, Arthur W.	St. Paul	† Lannin, Donald R.	St. Paul	† Ostergren, Edward W.	St. Paul
† Gardner, Walter P.	St. Paul	† Larrabee, Walter F., Jr.	St. Paul		
† Garrow, Douglas M.	St. Paul	† Larson, Eva-Jane Ostergren	St. Paul		
† Gehlen, Joseph N.	St. Paul	† Larson, James T.	So. St. Paul		
		† Larson, Kenneth R.	St. Paul		



# COUNTY SOCIETY ROSTER

† Ouellette, Alfred J.	St. Paul
† Owens, Frederick M., Jr.	St. Paul
† Paulson, Elmer C.	St. Paul
† Paulson, Wallace J.	Minneapolis
† Pearson, Fritz R.	St. Paul
† Pearson, Malcolm M.	St. Paul
† Pedersen, Arthur H.	St. Paul
† Peltier, Leonard F.	Minneapolis
† Peterson, David B.	St. Paul
† Peterson, Donald H.	St. Paul
† Peterson, Harold O.	St. Paul
† Peterson, Joel L. E.	St. Paul
† Peterson, Roy L.	White Bear Lake
† Plondke, Fred J.	White Bear Lake
† Plonke, Harry L.	St. Paul
† Post, Paul G.	South St. Paul
† Post, Edmund A.	St. Paul
† Quattlebaum, Frank W.	St. Paul
† Ralph, James R.	St. Paul
† Ramlow, Ralph M.	St. Paul
† Ramsey, Walter R.	St. Paul
† Rasmussen, Ramby C.	St. Paul
† Ravits, Harold G.	St. Paul
† Rea, Charles E.	St. Paul
† Reeves, Melvin M.	St. Paul
† Reid, James W.	South St. Paul
† Reif, Robert W.	White Bear Lake
† Richards, Albert M.	St. Paul
† Richards, Ernest T. F.	St. Paul
† Richardson, Edward J., Jr.	St. Paul
† Richardson, Robert J.	St. Paul
† Rick, Paul F. W.	St. Paul
† Rinke, Eugene	St. Paul
† Ritchie, Wallace P.	St. Paul
† Ritt, Albert E.	St. Paul
† Roach, Donald E.	St. Paul
† Rogers, Sydney F.	St. Paul
† Rolig, David H.	St. Paul
† Rollie, Orris O.	St. Paul
† Rosenthal, Robert	St. Paul
† Roth, George C.	St. Paul
† Rothschild, Harold J.	St. Paul
† Rowe, Clarence J., Jr.	St. Paul
† Roy, Phil C.	St. Paul
† Rubberg, George N.	Tarzona, Calif.
† Rusterholz, Alan P.	St. Paul
† Ryan, John J.	St. Paul
† Ryan, Joseph M.	St. Paul
† Sarnecki, M. M.	St. Paul
† Satterlund, Victor L.	St. Paul
† Savage, Francis J.	St. Paul

† Schmidtke, Reinhardt L.	St. Paul
† Schoch, Robert B. J.	St. Paul
† Schons, Edward	St. Paul
† Schroekstein, Hugo F.	St. Paul
† Schuldt, Frederick C.	St. Paul
† Schulze, Albert G.	St. Paul
† Schwyzer, Hanns C.	St. Paul
† Schwyzer, Marguerite	St. Paul
† Scott, Eugene E.	St. Paul
† Sekhon, Mohan S.	St. Paul
† Sells, Richard J.	North St. Paul
† Senkler, George E.	St. Paul
† Setzer, Robert J.	St. Paul
† Shannon, William R.	St. Paul
† Shlander, Marcus I.	St. Paul
† Shellman, John L.	Pacific Palisades, Calif.
† Short, Jacob	St. Paul
† Siegel, Clarence	St. Paul
† Simons, Leander T.	St. Paul
† Singer, Benjamin J.	St. Paul
† Skinner, Abbott	St. Paul
† Skinner, Harvey O.	St. Paul
† Smisek, Elmer A.	St. Paul
† Smith, Vernon D.	St. Paul
† Snyder, George William	St. Paul
† Sohlberg, Olof I.	St. Paul
† Sommerdorf, Vernon L.	St. Paul
† Sommers, Ben	St. Paul
† Sorem, Milton B.	St. Paul
† Soucheray, Philip H.	St. Paul
† Souster, Benjamin B.	St. Paul
† Sowada, Ernest J.	St. Paul
† Sprafka, Gregory	St. Paul
† Sprafka, Joseph M.	St. Paul
† Steinberg, Charles L.	St. Paul
† Sterner, Donald C.	St. Paul
† Sterner, E. R.	St. Paul
† Sterner, John J.	St. Paul
† Stewart, Alexander	St. Paul
† Stolpestad, Armer H.	St. Paul
† Stolpestad, Herbert L.	St. Paul
† Strand, Jack W.	St. Paul
† Strate, Gordon E.	St. Paul
† Streum, M. L.	St. Paul
† Sturley, Rodney F.	St. Paul
† Swanson, John A.	St. Paul
† Swanson, Lawrence J.	St. Paul
† Swenson, James J.	St. Paul
† Swenson, Donald B.	St. Paul

† Teisberg, John E.	St. Paul
† Thompson, Floyd A.	St. Paul
† Thoreson, M. C. Bernice	South St. Paul
† Tiff, Cyril R.	St. Paul
† Tongen, Lyle	St. Paul
† Tracht, Robert R.	St. Paul
† Travis, James S.	St. Paul
† Tregilgas, Harold R.	St. Paul
† Tregilgas, Richard B.	St. Paul
† Ubel, Frank A.	St. Paul
† Van Bergen, Frederick H.	Minneapolis
† Varco, Richard L.	St. Paul
† Veirs, Dean M.	St. Paul
† Veirs, Ruby J. S.	St. Paul
† Venables, Alexander E.	St. Paul
† Waas, Charles W.	St. Paul
† Walker, Arthur E.	St. Paul
† Wall, James O.	St. Paul
† Wallinga, Jack	Oakland, Calif.
† Walsh, Edward F.	St. Paul
† Walter, Clarence W.	St. Paul
† Warren, Cecil A.	St. Paul
† Watson, P. Theodore	St. Paul
† Watson, William H. A.	St. Paul
† Watson, William J.	Newport
† Waiz, Clarence E.	St. Paul
† Webber, Fred L.	St. Paul
† Wedes, Dena J.	St. Paul
† Weis, Benjamin A.	St. Paul
† Weisberg, Maurice	St. Paul
† Wenzel, Gilbert P.	St. Paul
† Westover, D. E.	St. Paul
† Wetzel, Earl V.	St. Paul
† Wilkinson, Stella L.	St. Paul
† Williams, Arthur B.	St. Paul
† Williams, Clayton K.	St. Paul
† Williams, George E.	St. Paul
† Williams, John A.	St. Paul
† Williams, Richard A.	St. Paul Park
† Wilson, J. Allen	St. Paul
† Wilson, James V.	St. Paul
† Winnick, Joseph B.	St. Paul
† Witthaus, Melvyn E.	Mahtomedi
† Wolff, Herman J.	St. Paul
† Wolkoff, H. J.	St. Paul
† Word, Harlan L.	St. Paul
† Yamamoto, Joe	Oklahoma City, Okla.
† Youngren, Everett R.	St. Paul
† Zachman, Leo L.	St. Paul
† Zagaria, James F.	St. Paul
† Zimmermann, Harry B.	St. Paul

## RED RIVER VALLEY MEDICAL SOCIETY

Kittson, Mahanomen, Marshall, Norman, Pennington, Polk, Red Lake and Roseau Counties  
Regular Meetings, quarterly. Annual Meeting, December.

Number of Members—60

President	
FEIGAL, WILLIAM M.	Thief River Falls
Secretary	
SATHER, RUSSELL O.	Crookston
Anderson, Wallace E.	Clearbrook
Behr, Orlo K.	Crookston
Berg, Arnold M.	Roseau
Berge, David O.	Roseau
Berlin, Anthony S.	Hallock
† Biedermann, Jacob	Thief River Falls
† Boyer, George S.	Crookston
† Bratrud, Edward	Thief River Falls
Brink, Adlai A.	Baudette
† Cameron, John H.	Crookston
Clapp, Hubert D.	Crookston
Covey, Kenneth W.	Rochester
Dale, Lester N.	Red Lake Falls
† Delmore, John L.	Roseau
† Delmore, John L., Jr.	Roseau
† Delmore, Robert J.	New Orleans, La.
Downing, William G.	Crookston

† Erickson, Eskil	Halstad
† Feigal, William M.	Thief River Falls
† Flancher, Leon H.	Crookston
† Greene, Daniel E.	Thief River Falls
† Hirsh, Stanton A.	Crookston
† Hollands, William H.	Fisher
† Holmstrom, Carle H.	Warren
† Janecky, Allen G.	Baudette
† Jensen, John A.	Crookston
† Klefstad, Lloyd H.	Greenbush
† Kostick, William R.	Fertile
† Loken, Theodore	Ada
† McDonald, William J.	Crookston
† McHardy, Bryson R.	Chicago, Ill.
† McKaig, Alan M.	Red Lake Falls
† Martin, George B.	Thief River Falls
† Mercil, William	Crookston
† Mueller, Donald R.	Bagley
† Nelson, Henry E.	Crookston
† Nelson, Kenneth L.	Warroad
† Nord, J. Erling	Hallock

† Oppgaard, C. L.	Crookston
† Parker, Philip J.	Hallock
† Pumala, Erven E.	Warren
† Reff, Alan R.	Crookston
† Roholt, Christian	McIntosh
† Rydland, Arne D.	San Diego, Calif.
† Sather, Edgar L.	Foston
† Sather, George A.	Foston
† Sather, Richard N.	Foston
† Sather, Russell O.	Crookston
† Schossow, George W.	Erskine
† Skogerbe, Rudolph B.	Karlstad
† Stadem, Clifford	Twin Valley
† Starekow, Milton D.	Thief River Falls
† Stensgaard, Kermit L.	Thief River Falls
† Stewart, Donald E.	Crookston
† Thywell, Harold R.	Crookston
† Uhley, Charles G.	Crookston
† Van Rooy, George T.	Thief River Falls
† Wendt, H. Paul	Thief River Falls
† Wikoff, Howard M.	Crookston
† Wilttrout, Irving G.	Orlo

## RENVILLE-REDWOOD COUNTY MEDICAL SOCIETY

Renville and Redwood Counties  
Regular Meetings, third Tuesday of each month. Annual Meeting, November.

Number of Members—26

President	
NELSON, GLENN E.	Fairfax
Secretary	
HAAS, JACK F.	Fairfax
† Alcorn, William J.	Wabasso
† Alton, Donald	Bird Island
† Anderson, Chester A.	Hector
† Beesonen, Daniel H.	Olivia
† Billings, Ralph E.	Franklin
† Brand, William A.	Redwood Falls

† Ceplecha, Stanley F.	Redwood Falls
† Cosgriff, James A., Sr.	Olivia
† Cosgriff, James A., Jr.	Olivia
† Diessner, Ardell W.	Redwood Falls
† Dordal, John	Sacred Heart
† Fawcett, Arthur M.	Renville
† Flinn, Thomas E.	Remer
† Furr, Leo O.	Long Beach, Calif.
† Haas, Jack F.	Fairfax
† Hinderaker, Harris P.	Bird Island

† Johnson, Orville H.	Omaha, Nebraska
† Johnson, William E.	Morgan
† Knoche, Harvey A.	Morgan
† Lenz, Joseph R.	Morton
† Mesker, George H.	Olivia
† Metz, Donald D.	Buffalo Lake
† Nelson, Glenn E.	Fairfax
† Pierce, Robert B.	Renville
† Preisinger, Joseph W.	Dallas, Texas
† Strauchler, Jonas	Belview



# COUNTY SOCIETY ROSTER

## RICE COUNTY MEDICAL SOCIETY

### Rice County

Regular Meetings, third Tuesday of each month. Annual Meeting, third Tuesday in October.

Number of Members—38

<b>President</b>	
ONE, BURTON A.	Faribault
<b>Secretary</b>	
BEATON, J. GORDON	Northfield
<b>Bauer, Paul G.</b>	Faribault
<b>Beaton, J. Gordon</b>	Northfield
<b>Brühl, Heinz H.</b>	Faribault
<b>Buensens, Ralph H.</b>	Waterville
<b>Dungay, Neil S.</b>	Northfield
<b>Engberg, Edward J.</b>	Faribault
<b>Francis, David W.</b>	Morristown
<b>Furlow, William L.</b>	Faribault
<b>Hanson, Adolph M.</b>	Faribault

<b>Hanson, John W.</b>	Northfield
<b>Huxley, Frederick R.</b>	Faribault
<b>Kennedy, George L.</b>	Faribault
<b>Kolars, James J.</b>	Faribault
<b>Kucera, Louis B.</b>	Colorado Springs, Colorado
<b>Larson, W. G.</b>	Northfield
<b>Lende, Norman</b>	Faribault
<b>Lexa, F. J.</b>	Lonsdale
<b>Mears, Robert F.</b>	Northfield
<b>Meyer, Frederick C.</b>	Kenyon
<b>Meyer, Paul F.</b>	Faribault
<b>Meyer, Robert P.</b>	Faribault
<b>Moses, Royal R.</b>	Kenyon
<b>Nelson, Ernest J.</b>	Lonsdale

<b>Nielsen, Alvin M.</b>	Northfield
<b>Nuetzman, Arthur W.</b>	Faribault
<b>Orr, Burton A.</b>	Faribault
<b>Ozolin, Maria</b>	Faribault
<b>Peterson, D. H.</b>	Northfield
<b>Roberts, Stanley E.</b>	Faribault
<b>Robilliard, Charles M.</b>	Faribault
<b>Rumpf, Carl W.</b>	Faribault
<b>Rysgaard, George M.</b>	Northfield
<b>Stevenson, Frank W.</b>	Faribault
<b>Street, Bernard</b>	Northfield
<b>Studer, Donald J.</b>	Faribault
<b>Traeger, Carl A.</b>	Faribault
<b>Weaver, Paul H.</b>	Faribault
<b>Wilson, Warren E.</b>	Northfield

## ST. LOUIS COUNTY MEDICAL SOCIETY

Carlton, Cook, Itasca, Lake and St. Louis Counties

Regular Meetings, second Thursday, except July and August.

Annual Meeting, second Thursday in January.

Number of Members—280

<b>President</b>	
BIANCO, A. J., Sr.	Duluth
<b>Secretary</b>	
BERGAN, R. O.	Duluth
<b>Executive Secretary</b>	
Mrs. MARGARET B. GILBERT	Duluth
<b>Abraham, Arden L.</b>	Duluth
<b>Adams, Bertram S.</b>	Hibbing
<b>Addy, Edward R.</b>	Gilbert
<b>Ahola, Kenneth E.</b>	Hibbing
<b>Ahrens, Curtis F.</b>	Duluth
<b>Allison, David D.</b>	Duluth
<b>Alpert, Abraham E.</b>	Virginia
<b>Andrew, William F.</b>	Duluth
<b>Antonow, Arthur M.</b>	Virginia
<b>Arko, Joseph L.</b>	Hibbing
<b>Asta, Joseph J.</b>	Duluth
<b>Athens, Alvin G.</b>	Duluth
<b>Atmore, William G.</b>	Duluth
<b>Aufderheide, Arthur C.</b>	Duluth
<b>Backus, Reno W.</b>	Nopeming
<b>Bagley, Charles M.</b>	Duluth
<b>Bagley, Elizabeth C.</b>	Duluth
<b>Bagley, William R.</b>	Duluth
<b>Baich, Velemir M.</b>	Coleraine
<b>Bakkila, Henry E.</b>	Duluth
<b>Bardon, Richard</b>	Duluth
<b>Barker, John D.</b>	Duluth
<b>Barnes, Richard E.</b>	Aurora
<b>Barney, Leon A.</b>	Duluth
<b>Barrett, Earl</b>	Duluth
<b>Bartzen, Peter J.</b>	Duluth
<b>Becker, Fredk. T.</b>	Duluth
<b>Benell, Otto E.</b>	Virginia
<b>Benko, Marie K.</b>	Cloquet
<b>Berde, George L.</b>	Duluth
<b>Bergan, R. O.</b>	Duluth
<b>Bianco, Anthony J., Sr.</b>	Duluth
<b>Bianco, Anthony J., Jr.</b>	Rochester
<b>Binet, Henry E.</b>	Grand Rapids
<b>Blackmore, Sidney C.</b>	Biwabik
<b>Bloom, Joseph</b>	Silver Bay
<b>Bolz, J. Arnold</b>	Grand Rapids
<b>Boman, Paul G.</b>	Duluth
<b>Bonner, John L.</b>	Eveleth
<b>Bouchelle, McLemore</b>	Virginia
<b>Bowen, Robert L.</b>	Hibbing
<b>Boyea, Lyle H.</b>	Man, West Virginia
<b>Boyer, Sam H., Jr.</b>	Duluth
<b>Boyer, Sam H.</b>	Duluth
<b>Braun, Ohrmundt C.</b>	Grand Rapids
<b>Bray, Philip N.</b>	Duluth
<b>Brockway, Roger W.</b>	Grand Rapids
<b>Brooker, Warren J.</b>	Duluth
<b>Buchanan, Gerald S.</b>	Ft. Benning, Ga.
<b>Buckley, Robert P.</b>	Duluth
<b>Burleigh, Edward G.</b>	Eveleth
<b>Butler, John K.</b>	Cloquet
<b>Cantwell, William F.</b>	International Falls
<b>Chermak, Francis G.</b>	International Falls
<b>Chittum, John R.</b>	Aurora
<b>Christensen, Clarence H.</b>	Duluth
<b>Ciriacy, Edward W.</b>	Ely
<b>Clark, Clarence L.</b>	Duluth
<b>Clark, Elizabeth A.</b>	Duluth
<b>Clark, Ivan T.</b>	Duluth
<b>Coll, James J.</b>	Duluth
<b>Collins, Arthur N.</b>	Duluth
<b>Conley, Francis W.</b>	Duluth
<b>Cope, Hershel E.</b>	Minneapolis
<b>Cowan, George M.</b>	Duluth

<b>Coventry, William D.</b>	Duluth
<b>Detjen, Edward D.</b>	Bigfork
<b>Dickson, Franklin H., Jr.</b>	Proctor
<b>Doxsee, George C.</b>	Chisholm
<b>Dwyer, John J.</b>	Duluth
<b>Eckman, Philip F.</b>	Duluth
<b>Eckman, Ralph J.</b>	Duluth
<b>Eisenman, Walter</b>	Hibbing
<b>Eklund, John William</b>	Duluth
<b>Eklund, Carl D.</b>	Duluth
<b>Elias, Frank J.</b>	Duluth
<b>Emanuel, Karl William</b>	Duluth
<b>Eppard, Raymond M.</b>	Cloquet
<b>Erickson, George P.</b>	Hibbing
<b>Erickson, Vernon D.</b>	Grand Rapids
<b>Erskine, Gordon M.</b>	Grand Rapids
<b>Evensta, John D.</b>	Grand Rapids
<b>Farley, Frank G.</b>	Hibbing
<b>Fawcett, Keith R.</b>	Duluth
<b>Fellows, Manley F.</b>	Duluth
<b>Ferrand, Paula T.</b>	Moose Lake
<b>Ferrell, Clarence R.</b>	Grand Rapids
<b>Feuling, John C.</b>	Duluth
<b>Fifield, Malcolm M.</b>	Duluth
<b>Fischer, Mario McC.</b>	Duluth
<b>Fisketti, Henry</b>	Duluth
<b>Flynn, Bernard F.</b>	Hibbing
<b>Fredericks, Merriam G.</b>	Duluth
<b>French, Bayard T.</b>	Hibbing
<b>Fuller, Josiah</b>	Duluth
<b>Gillespie, Malcolm G.</b>	Duluth
<b>Goldish, Daniel R.</b>	Duluth
<b>Goldish, Robert J.</b>	Duluth
<b>Goodman, Charles E.</b>	Virginia
<b>Gowan, Lawrence R.</b>	Duluth
<b>Graham, Archibald W.</b>	Chisholm
<b>Grakek, Jack P.</b>	Ely
<b>Granquist, Richard D.</b>	Coleraine
<b>Grimley, Andrew V.</b>	Grand Rapids
<b>Grohs, William H.</b>	Duluth
<b>Haavik, John E.</b>	Duluth
<b>Halbert, John J.</b>	Duluth
<b>Halliday, Phillip V.</b>	Minneapolis
<b>Halper, Bernard</b>	Hibbing
<b>Haney, Claude L.</b>	Duluth
<b>Hansen, Robert E.</b>	Hibbing
<b>Hanson, Ernest O.</b>	Cloquet
<b>Harrington, Vernon A.</b>	Duluth
<b>Harris, Carl N.</b>	Hibbing
<b>Hatch, Walter E.</b>	Duluth
<b>Hedberg, Gustaf A.</b>	Nopeming
<b>Heiam, William C.</b>	Cook
<b>Hilding, Anderson C.</b>	Duluth
<b>Hill, Frederick E.</b>	Riverside, Calif.
<b>Hill, John P.</b>	Virginia
<b>Hirschboeck, Frank J.</b>	Duluth
<b>Hoff, Herbert O.</b>	Duluth
<b>Hoover, Norman W.</b>	Virginia
<b>Houkom, Samuel S.</b>	Duluth
<b>Hult, John E.</b>	Cloquet
<b>Hutchinson, Henry</b>	Moose Lake
<b>Indihar, John E.</b>	Minneapolis
<b>Ireland, Gerald W.</b>	Nashauk
<b>Jacobson, Clarence</b>	Chisholm
<b>Jacobson, Ferdinand C.</b>	Duluth
<b>Jensen, Thorvald J.</b>	Duluth
<b>Jeronimus, Henry J.</b>	Duluth
<b>Jessico, Charles M.</b>	Duluth
<b>Joffe, Harold H.</b>	Virginia
<b>Johnsen, Henry A., Jr.</b>	Edina
<b>Johnson, Karl E.</b>	Duluth

<b>Johnsrud, Luverne W.</b>	Hibbing
<b>Johnston, Henry W.</b>	Virginia
<b>Johnston, Rufus O.</b>	Gainesville, Fla.
<b>Jolin, Francis M.</b>	Bovey
<b>Juntunen, Roy R.</b>	Duluth
<b>Karges, L. E.</b>	Grand Rapids
<b>Kelley, Robert T.</b>	Nashauk
<b>Kelley, Walter</b>	Duluth
<b>Klein, Harry</b>	Duluth
<b>Klein, William A.</b>	Duluth
<b>Knapp, Frank N.</b>	Duluth
<b>Knoedler, John P.</b>	Duluth
<b>Kohlbray, Carl O.</b>	Duluth
<b>Koskela, Lauri E.</b>	Keewatin
<b>Kotchevar, Frank R.</b>	Eveleth
<b>Kozberg, Oscar</b>	Moose Lake
<b>Krueger, Victor R.</b>	Nopeming
<b>Kruger, Elmer L., Jr.</b>	Hibbing
<b>LaBree, Robert H.</b>	Duluth
<b>Laird, Arthur T.</b>	Duluth
<b>Larson, Keith D.</b>	Moose Lake
<b>Latterell, Kenneth E.</b>	Duluth
<b>Law, Harrison E.</b>	Virginia
<b>Leek, Joseph H.</b>	Duluth
<b>Lepak, Francis J.</b>	Duluth
<b>Leppo, N. Erkki A.</b>	Duluth
<b>Lipinski, Stanley W.</b>	Memphis, Tenn.
<b>Litman, Samuel N.</b>	Duluth
<b>McCarty, Paul D.</b>	Ely
<b>McCoy, Mary K.</b>	Duluth
<b>McDonald, Archibald</b>	Duluth
<b>McDonald, Owen G.</b>	Duluth
<b>McHaffie, Orval L.</b>	Duluth
<b>McKenna, John J.</b>	Virginia
<b>McKenna, Maurice J.</b>	Grand Rapids
<b>McNutt, John R.</b>	Duluth
<b>McRae, Gordon C.</b>	Duluth
<b>Magney, Fredolph H.</b>	Duluth
<b>Magraw, Richard M.</b>	Minneapolis
<b>Malnstrom, John A.</b>	Virginia
<b>Marley, Walter J.</b>	Minneapolis
<b>Marrone, Patrick H.</b>	Duluth
<b>Martin, Webster C.</b>	Duluth
<b>Martin, William B.</b>	Duluth
<b>Mast, Frederic L.</b>	Chisholm
<b>Mayne, Roy M.</b>	Nopeming
<b>Mead, Charles H.</b>	Duluth
<b>Merriman, Lloyd L.</b>	Duluth
<b>Miettunen, John B.</b>	Chisholm
<b>Moe, Thomas</b>	Moose Lake
<b>Mochling, Henry G.</b>	Duluth
<b>Mollers, Theodore P.</b>	Soudan
<b>Monroe, Paul B.</b>	Cloquet
<b>Monserud, Nels O.</b>	Cloquet
<b>Morsman, L. William</b>	Hibbing
<b>Moyer, John B.</b>	Duluth
<b>Munson, Martin S.</b>	Barnum
<b>Murray, Robert A.</b>	Hibbing
<b>Nakamura, James Y.</b>	Deer River
<b>Neff, Walter S.</b>	Virginia
<b>Nelson, Robert L.</b>	Duluth
<b>Nicholson, Murdoch A.</b>	Duluth
<b>Nisius, George F.</b>	Duluth
<b>Norberg, Carl E.</b>	Cloquet
<b>Nollet, Donald J.</b>	Hibbing
<b>Nutting, Roland E.</b>	Duluth
<b>O'Neill, John C.</b>	Duluth
<b>Olson, Albert E.</b>	Duluth
<b>Olson, Archie O.</b>	Duluth
<b>Owens, Ben P.</b>	Hibbing
<b>Paciotti, Vincent J.</b>	Minneapolis

## COUNTY SOCIETY ROSTER

Papermaster, Ralph	Two Harbors
Parson, E. Irvine	Duluth
Pasek, Antone W.	Cloquet
Patch, Orien B.	Duluth
Pearall, R. P.	Virginia
Pedersen, Roy C.	Duluth
Pennie, Daniel F.	Duluth
Peterson, Edward N.	Virginia
Peterson, John H.	Duluth
Pierce, Jack R.	Virginia
Power, John E.	Duluth
Power, John E., Jr.	Duluth
Puumala, Reino H.	Cloquet
† Raadquist, Charles S.	Hibbing
Raattama, John W.	Nashauk
Rajala, Arnold I.	Grand Rapids
Reed Paul	Virginia
Richter, David J.	Virginia
Rokala, Henry E.	Virginia
Rowe, Olin W.	Duluth
Rowles, Everett K.	Coleraine
Rudie, Peter S.	Duluth
Rudie, William D.	Duluth
Runquist, John M.	Duluth
Ryan, William J.	Duluth
Sach-Rowitz, Alvan	Moose Lake
Salter, Reginald A.	Virginia

† Sanford, John B.	Chicago, Illinois
Sarff, Oliver E.	Duluth
Sax, Milton H.	Duluth
Sax, Simon G.	Duluth
Schirber, Martin J.	Grand Rapids
Schmid, John F.	Duluth
Schneider, Laurence E.	Duluth
Schroder, C. H.	Pottstown, Penn.
Schweiger, Theodore R.	Hibbing
Seashore, R. T.	Duluth
Sher, David A.	Virginia
† Shirai, Shohei	Coleraine
Siegel, John S.	Virginia
Sinamark, Andrew	Hibbing
Sisler, Clifford E.	Grand Rapids
Smith, Cyril M.	Duluth
Smith, Wallace R.	Grand Marais
Snyder, Omer E.	Ely
Spang, Anthony J.	Duluth
Spang, James S.	Duluth
Spang, William M.	Duluth
Stein, William A.	Ely
Storsteen, Kenneth A.	Duluth
† Strathern, Moses L.	Gilbert
Strauss, Eugene C.	Duluth
Streitz, John M.	Duluth
§ Strewler, Gordon J.	Duluth

Strobel, William G.	Duluth
Sutherland, Harry N.	Ely
Swedberg, William A.	Duluth
Swenson, Arnold O.	Duluth
Teich, Kenneth W.	Duluth
Terrell, Bernard J.	Nopeming
Tetlie, James P.	Duluth
Thomas, John V.	Duluth
Thouin, Laurence G.	Hibbing
Tingdale, Carlyle	Hibbing
Tomhave, Wesley G.	Hibbing
Tosseland, Noel E.	Duluth
Tuohy, Edward L.	Santa Barbara, Calif.
Urberg, Sofus E.	Duluth
Van Ryzin, Donald J.	Duluth
Walder, Harold J.	Duluth
† Walker, Alfred E.	St. Paul
Wallace, Martin O.	Duluth
Walter, Frederick H.	International Falls
Wells, Arthur H.	Duluth
Wheeler, Daniel W.	Duluth
† Williams, Bruce F. P.	Duluth
Winter, John A.	Duluth
Wolff, John M.	Duluth
Young, Thomas O.	Duluth
Zemmers, Roberts	Duluth
§ Zupanc, Edward	Duluth

## SCOTT-CARVER COUNTY MEDICAL SOCIETY

Scott and Carver Counties  
Regular Meetings, third Wednesday of every month, except July and August.  
Annual Meeting, third Wednesday in June.

Number of Members—31

<i>President</i>	
STAHLEH, PAUL A.	Jordan
<i>Secretary</i>	
RIESCHL, ELIZABETH K.	Jordan
Bratholdt, James W.	Watertown
† Buck, Frederick H.	Shakopee
§ Cervenka, Charles F.	New Prague
Clarke, John W.	Watertown
Doherty, Elmer M.	New Prague
Hebeisen, Milton B.	Chaska
Heinz, Ivy B.	Shakopee

Heinz, Lawrence H.	Shakopee
Heinzeling, Carl R.	Chaska
§ Juergens, Herman M.	Belle Plaine
Kucera, Stanley T.	Northfield
Larson, Leighton W.	Waconia
Lukk, Olaf	Montgomery
† Martin, Thomas Philip	Arlington
Nagel, Harold D.	Minneapolis
Ninneman, Newton N.	Waconia
† Novak, Edward E.	New Prague
Olson, Chester J.	Belle Plaine
§ Pearson, Bror F.	Shakopee

Philp, David R.	Watertown
Pogue, Richard E.	Watertown
§ Ponterio, James E.	Shakopee
Rieschl, Elizabeth K.	Jordan
§ Rynda, Edwin R.	New Prague
Sawaryniuk, Iwan	Waconia
Schimelpfenig, George T.	Chaska
Simmonds, Harry N.	Prior Lake
§ Simons, Bernard H.	Chaska
Stahler, Paul A.	Jordan
† Westerman, Alvin	Montgomery
Westerman, Fred	Montgomery

## SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

Cottonwood, Jackson, Murray, Nobles, Pipestone, and Rock Counties  
Regular Meetings, on call. Annual Meeting, October.

Number of Members—63

<i>President</i>	
CHRISTIANSEN, HAROLD A.	Jackson
<i>Secretary</i>	
HEIBERG, OLAF M.	Worthington
Arnold, Elmer W.	Adrian
Bader, J. L.	Slayton
Basinger, Harold P.	Windom
Basinger, Harvey R.	Mountain Lake
Basinger, Homer P.	Windom
Beckerling, Gerrit	Edgerton
Benjamin, Walter G.	Pipestone
Botenkamp, F. William	Luverne
Boone, Ervin S.	Luverne
Brown, Alexander H.	Pipestone
Buresh, Kenneth L.	Columbus, Ga.
Carlson, John V.	Westbrook
Christiansen, Harold A.	Jackson
Dawson, Lorin D.	Worthington
Dokken, James H.	Windom
Doman, Victor W.	Lakefield
Hallin, Roger P.	Worthington
Halloran, Walter H.	Jackson

§ Halpern, David J.	Brewster
Harada, Thomas T.	Lake Wilson
Harrison, Percy W.	Worthington
Heiberg, Olaf M.	Worthington
Hoyer, Ludolf J.	Windom
Keyes, Robert W.	Pipestone
Kilbride, Edwin A.	Worthington
Koencke, Fred H.	Lakefield
Kotval, Russell J.	Pipestone
Laikola, Leslie A.	Adrian
Lohmann, John G.	Pipestone
Maitland, Edwin T.	Jackson
† Manson, Frank M.	Worthington
Martin, Albert C.	Luverne
Minge, Raymond K.	Worthington
Nealy, Donald E.	Adrian
Nicholson, Richard W.	Heron Lake
Nywall, Dean D.	Slayton
Odland, Donald M.	Luverne
Pankratz, Peter J.	Mountain Lake
Patterson, Hugh D.	Slayton
Pierston, Roy F.	Slayton

§ Piper, William A.	Mountain Lake
Plucker, Milton W.	Worthington
† Ritzinger, Fredk. R.	Worthington
§ Randolph Air Force Base, Texas	
Robinet, Robert W.	Worthington
Rohrer, Christian A.	Worthington
Rose, John T.	Lakefield
Runquist, Richard K.	Westbrook
Sawtell, Robert R.	Worthington
Schade, Fredk. L.	Worthington
Schutz, Elmer S.	Mountain Lake
Sherman, Charles L.	Luverne
Slater, Sidney A.	Worthington
Sogge, Ludwig L.	Windom
Stam, John	Worthington
Stanley, Court R.	Richfield
Stevenson, Basil M.	Fulda
Stratte, Harold C.	Windom
Vix, Vernon A.	Worthington
Wells, Walter B.	Jackson
Williams, Charles A.	Pipestone
† Williams, Leon A.	Minneapolis
§ Zeller, Nicholas H.	New York, N. Y.

## STEARNS-BENTON COUNTY MEDICAL SOCIETY

Stearns and Benton Counties  
Regular Meetings, third Thursday of month. Annual Meeting, December.

Number of Members—68

<i>President</i>	
SISK, HARVEY E.	St. Cloud
<i>Secretary</i>	
PETERSEN, ROBERT T.	St. Cloud
Alden, W. Charles	Kimball
Anderson, Ernest M.	St. Cloud
Andrews, Bernice F.	Holdingford
Autrey, William A.	St. Cloud
Baumgartner, Florian H.	Albany
Beuning, John B.	St. Cloud
† Brigham, Charles F., Sr.	St. Cloud
Brigham, Charles F., Jr.	St. Cloud

Broker, Henry M.	St. Cloud
§ Buscher, Julius C.	St. Cloud
† Cesnik, Robert J.	St. Cloud
Chadbourne, Wayne A.	St. Cloud
§ Clark, Harry B.	St. Cloud
Claves, William D.	Sauk Centre
Donaldson, Charles S.	St. Cloud
Dredre, Thomas E.	St. Cloud
DuBois, Julian F., Sr.	Sauk Centre
DuBois, Julian F., Jr.	Sauk Centre
§ Evans, Leslie M.	Sauk Rapids
Fidelman, Norman E.	Foley
† Fleming, Thomas N.	St. Cloud

§ Gaida, Joseph B.	St. Cloud
Goehrs, Gilman H.	St. Cloud
† Goehrs, Henry W.	St. Cloud
Grant, John C.	Sauk Centre
† Haberman, Emil	St. Cloud
Helenbeck, Philip L.	St. Cloud
Hedlund, Charles J.	Minneapolis
Henry, Clarence J.	Milaca
† Henry, J. E.	Milaca
Hoehn, David	Holdingford
† Jones, Richard N.	St. Cloud
Keith, Paul J.	Milaca

## COUNTY SOCIETY ROSTER

Kelly, John F.....Cold Spring  
Koenig, Robert P.....Geneva, N. Y.  
Kohler, Delphin W.....Tacoma, Wash.  
Koop, Herman.....Cold Spring  
Kuhlmann, Lawrence B.....Melrose  
LaFond, Edward M.....St. Cloud  
Lewis, Claude B.....St. Cloud  
Libert, John N.....St. Cloud  
Lindeman, R. J.....Paynesville  
Loes, Louis A.....St. Cloud  
Luckemeyer, Carl J.....St. Cloud  
McDowell, John P.....St. Cloud

Meyer, Anthony A.....Melrose  
Milhaupt, E. N.....St. Cloud  
Mueller, Rudolph B.....Richmond  
Musacho, Nicholas F.....Foley  
Myre, Clifford R.....Paynesville  
Neils, Vernon E.....Sauk Rapids  
Nessa, Curtis B.....St. Cloud  
Nietfield, Aloys.....Sauk Centre  
O'Keefe, James P.....St. Cloud  
Petersen, Robert T.....St. Cloud  
Phares, Otto C.....St. Cloud  
Raetz, Sylvester J.....Maple Lake  
Reif, Henry J.....St. Cloud

Richards, William B.....St. Cloud  
Saik, Richard O.....Albany  
Sandven, Nels O.....Paynesville  
Schatz, Francis J.....St. Cloud  
Sherwood, George E.....Kimball  
Sisk, Harvey E.....St. Cloud  
Stangl, Philip E.....St. Cloud  
Thuringer, Carl B.....St. Cloud  
Walfred, Karl A.....St. Cloud  
Wenner, Waldemar T.....St. Cloud  
Wittrock, Louis H.....Watkins  
Zachman, Albert H.....Melrose

## STEELE COUNTY MEDICAL SOCIETY

Steele County

Regular Meetings, called by the officers. Annual Meeting, January.

Number of Members—22

**President**  
ARNESSEN, JOHN F.....Owatonna  
**Secretary**  
DEWEY, DONALD H.....Owatonna  
Anderson, Franklin C.....Owatonna  
Arnesen, John F.....Owatonna  
Dewey, Donald H.....Owatonna  
Eitel, Edward Q.....Ellendale

Fischer, John R.....Blooming Prairie  
Halvorsen, Daniel K.....Owatonna  
Hartung, Elmer H.....Claremont  
Henry, Kenneth G.....Owatonna  
Honath, Donald H.....Owatonna  
Kulstad, Oscar J.....Dodge Center  
Kurtin, Joseph J.....New York, N. Y.  
Lundquist, Curt W.....Owatonna  
McEnaney, Clifford T.....Owatonna

McIntyre, John A.....Owatonna  
Melby, Benedik.....Blooming Prairie  
Morehead, Dewey E.....Owatonna  
Olson, Albert J.....Owatonna  
Roberts, Oliver W.....Owatonna  
Schaefer, Joseph F.....Owatonna  
Senn, Edward W.....Owatonna  
Stransky, Theodore W.....Owatonna  
Wilkowski, Rudolph J.....Owatonna

## UPPER MISSISSIPPI MEDICAL SOCIETY

Aitkin, Beltrami, Cass, Clearwater, Crow Wing, Hubbard, Koochiching,  
Lake of the Woods, Morrison, Todd and Wadena Counties

Annual Meeting, January.

Number of Members—77

**President**  
DAVIS, LUTHER F.....Wadena  
**Secretary**  
BADAUX, GEORGE I.....Brainerd  
Anderson, Werner W.....Brainerd  
Badeaux, George I.....Brainerd  
Bender, James H.....Brainerd  
Benson, Alfred H.....Little Falls  
Bolstad, Owen C.....Little Falls  
Borgerson, Arthur H.....Long Prairie  
Brown, Hector M.....Texas  
Cardle, George E.....Brainerd  
Clout, Frederick C.....Aitkin  
Cook, Jay M.....Staples  
Coombs, Carl H.....Cass Lake  
Craig, Clair C.....International Falls  
Cushing, Robert L.....Brainerd  
Davis, Lloyd T.....Wadena  
Davis, Luther F.....Wadena  
Deweese, Wilford J.....Bemidji  
Eiler, John.....Park Rapids  
Erickson, Alvan O.....Long Prairie  
Fitzsimons, William E.....Brainerd  
Fortier, George M. A.....Little Falls  
Franklin, Gordon W.....Northome  
Garlock, Arthur V.....Bemidji

Garlock, DeWitt W.....Highlands, Calif.  
† Ghostley, Mary C.....Bemidji  
† Gilmore, Rowland.....Crookston  
Griffin, John W.....Bemidji  
Groschupf, Theodore P.....Bemidji  
† Grose, Frederick N.....Clarissa  
Halme, William B.....Wadena  
† Hanover, Ralph D.....International Falls  
Hartjen, Jason K.....Bemidji  
Higgs, Walter W.....Park Rapids  
Hoganson, Donald E.....Bemidji  
† House, Zachariah E.....Burbank, Calif.  
† Hughes, Bernard J.....Brainerd  
† Johnson, Douglas L.....St. Paul  
† Johnson, Einar W.....Bemidji  
† Johnstone, William W.....Ah-gwah-ching  
† Kanne, Earl R.....Brainerd  
Kinports, Edward B.....International Falls  
† Knight, Edwin G.....Swanville  
Larson, LeRoy.....Bagley  
Lee, Hubert W.....Brainerd  
† Lenarz, Albert J.....Browerville  
Lofstrom, Dennis E.....Pine River  
Longfellow, Helen W.....Brainerd  
Lund, Werner J.....Staples  
Lundsten, Leslie G.....Bemidji  
† McLane, William O.....Brainerd  
† MacDonald, Roger A.....Littlefork

† Meller, Maurice.....Brainerd  
† Mortenson, Howard O.....Menasha  
† Mosby, Maurice E.....Long Prairie  
† Mulligan, Arthur M.....Brainerd  
† Nelson, Nemoth P.....Minneapolis  
† O'Leary, John B.....Brainerd  
† Olson, Lillian A.....Ah-gwah-ching  
† Parker, C. W.....Wadena  
† Parker, Warren E.....Sebeka  
† Pedersen, Robert L.....Brainerd  
† Pierce, Charles H.....Wadena  
† Quastrom, Virgil E.....Brainerd  
† Ringle, Otto F.....Walker  
† Schmitz, Glen P.....Little Falls  
† Schwyzer, Arnold G.....St. Paul  
† Simons, Edwin J.....Edina  
† Skaife, William F.....Little Falls  
† Stein, Raymond J.....Pierz  
† Stoy, Robert A.....Little Falls  
† Thabes, John A., Jr.....Brainerd  
† Watson, Alexander M.....Royalton  
† Watson, Percy T.....Miami, Fla.  
† Watson, Sydney W.....Royalton  
† Whittemore, Dexter D.....Bemidji  
† Will, Charles B.....International Falls  
† Will, W. W.....Bertha  
† Williams, M. M.....Ah-gwah-ching  
† Wilson, Robert E.....No. Little Rock, Ark.

## WABASHA COUNTY MEDICAL SOCIETY

Wabasha County

Annual Meeting, first Thursday after first Monday in October.

Number of Members—14

**President**  
BOUQUET, BERTRAM J.....Wabasha  
**Secretary**  
FLESCH, BERNARD A.....Lake City  
Bayley, E. Covell.....Lake City  
Bouquet, Bertram J.....Wabasha

Bowers, Robert N.....Lake City  
† Collins, Joseph S.....Wabasha  
† Ekstrand, LeRoy M.....Wabasha  
† Ellis, Earl Wm.....Elgin  
† Flatte, John B.....Wabasha  
† Flesche, Bernard A.....Lake City

† Gjerde, William P.....Lake City  
† Glabe, Robert A.....Plainview  
† Mahle, Donald G.....Plainview  
† Ochsner, Clarence G.....Wabasha  
† Replogle, W. H.....Los Angeles, Calif.  
† Sontag, David W.....Lake City

## WASECA COUNTY MEDICAL SOCIETY

Waseca County

Regular Meetings, as decided. Annual Meeting, January.

Number of Members—9

**President**  
HOTTINGER, RAYMOND C.....Janesville  
**Secretary**  
FLORINE, MARTIN C.....Janesville

† Davis, Raymond D.....Waseca  
† Florine, Martin C.....Janesville  
† Gallagher, Bernard J.....Waseca  
† Hottinger, Raymond C.....Janesville

† McIntire, Homer M.....Waseca  
† Normann, Stephen T.....Waseca  
† Oeljen, Siegfried C. G.....Waseca  
† Olds, George H.....New Richmond  
† Swenson, Orvie J.....Waseca

MAY, 1956

# COUNTY SOCIETY ROSTER

## WASHINGTON COUNTY MEDICAL SOCIETY

Washington and Dakota Counties

Regular Meetings, second Tuesday in each month. Annual Meeting, December.

Number of Members—21

<i>President</i>			
JUST, HERMAN J.....	Hastings	† Hooper, Worth A.....	Long Beach, Calif.
<i>Secretary</i>		† Humphrey, Wade R.....	Stillwater
JURGENSEN, MANLEY F.....	Stillwater	§ Jensen, James E.....	Stillwater
		§ Josewski, Raymond J.....	Stillwater
§ Carlson, Russel E.....	Stillwater	§ Juergens, Manley F.....	Stillwater
§ Fasbender, Herman T.....	Hastings	Just, Herman J.....	Hastings
† Holcomb, Joel T.....	Marine-on-St. Croix	Kiobasa, Edward B.....	Stillwater
		Kulzer, Norbert J.....	Hastings
		§ McCarten, Francis M.....	Stillwater
		Mensheha, Nicholas.....	Forest Lake
		† Poirier, Joseph A.....	Forest Lake
		Ruggles, George M.....	Forest Lake
		§ Sherman, Carnot H.....	Bayport
		§ Stuhr, John W.....	Stillwater
		Torghele, John R.....	Hastings
		Van Meier, Henry.....	Stillwater
		Weiss, Carl A.....	Hastings
		Wood, Lloyd T.....	Forest Lake

## WEST CENTRAL MINNESOTA MEDICAL SOCIETY

Big Stone, Pope, Stevens, and Traverse Counties

Regular Meetings, one Tuesday in March, May, September and November.

Annual Meeting, November.

Number of Members—26

<i>President</i>			
HEDMARK, HOMER H.....	Ortonville	† Eberlin, Edward A.....	Glenwood
<i>Secretary</i>		§ Eide, O. A.....	Hancock
KARN, JACOB F.....	Ortonville	† Elsey, James R.....	Glenwood
		† Giesen, Allan F.....	Starbuck
§ Arneson, Arthur I.....	Morris	Good, Roy H.....	Starbuck
§ Behmler, Frederick Wm.....	Morris	Hedemark, Homer E.....	Ortonville
† Bergan, Otto.....	Clinton	Hedemark, Truman A.....	Ortonville
† Bolsta, Charles.....	Ortonville	Karn, Jacob F.....	Ortonville
§ Bucher, Foster D.....	Starbuck	§ Kooda, Jennings C.....	Morris
		Lee, Gordon E.....	Glenwood
		† Letson, Robert D.....	Glenwood
		§ Lindberg, Alfred L.....	Wheaton
		† Linde, Herman.....	Cyrus
		§ Magnuson, Allen E.....	Wheaton
		§ Merrill, Robert W.....	Morris
		Muir, Walter F.....	Browns Valley
		§ Oliver, Irwin L.....	Graceville
		† Ransom, Matthias L.....	Hancock
		§ Rossberg, Raymond A.....	Morris
		§ Swedenburg, Paul A.....	Glenwood
		Watson, Robert M.....	Morris
		Winge, H. C.....	Wheaton

## WINONA COUNTY MEDICAL SOCIETY

Winona County

Regular Meetings, first Monday in January, April, July and October.

Annual Meeting, first Monday in January.

Number of Members—29

<i>President</i>			
FINKELNBURG, WILLIAM O.....	Winona	§ Heise, Philip vR.....	Winona
<i>Secretary</i>		§ Hughes, Sidney O.....	Winona
WILSON, LOUIS J.....	Winona	§ Johnston, Leonard F.....	Winona
		§ Keyes, John D.....	Winona
Boardman, Dalmon V.....	Winona	§ Loomis, George L.....	Winona
Christensen, Eli E.....	Winona	† McLaughlin, Edmund M.....	Winona
Finkelnburg, William O.....	Winona	§ Mattison, Percy A.....	Winona
Hartwich, Roger F.....	Winona	§ Meinert, Albert E.....	Winona
Heise, Carl vR.....	Winona	§ Neumann, Conrad A.....	Winona
Heise, Paul vR.....	Winona	§ Page, Raymond L.....	St. Charles
		† Robbins, Charles P.....	Winona
		Roemer, Henry J.....	Winona
		Rogers, Charles W.....	Winona
		Rollins, Pat.....	St. Charles
		Satterlee, Howard W.....	Lewiston
		Schmidt, Hilmar R.....	Groversville, N. Y.
		Tweedy, John A.....	Winona
		Tweedy, Robert B.....	Winona
		Vollmer, Frederick J.....	Winona
		Wilson, Louis J.....	Winona
		Wilson, Rolland H.....	Winona
		Woltjen, Myron J.....	Rushford
		Younger, Lewis I.....	Winona

## WRIGHT COUNTY MEDICAL SOCIETY

Wright County

Regular Meetings, first Tuesday of every second month.

Annual Meeting, first Tuesday in March.

Number of Members—17

<i>President</i>			
GUILFOILE, PIERRE J.....	Delano	§ Bendix, Lester H.....	Annandale
<i>Secretary</i>		† Catlin, John J.....	Buffalo
CATLIN, THEODORE J.....	Buffalo	§ Catlin, Theodore J.....	Buffalo
		§ Ellison, Frank E.....	Monticello
§ Abullarado, Jose A.....	New York, N. Y.	§ Fetzek, Albert D.....	Great Falls, Montana
§ Anderson, Waldo P.....	Buffalo	§ Greenfield, Wm. Theodore.....	Cokato
		Grundset, Ole J.....	Montrose
		Guilfoile, Pierre J.....	Delano
		Hall, William E.....	Maple Lake
		Hart, William E.....	Monticello
		Purves, G. Harland.....	Buffalo
		Sandeen, Robert M.....	Buffalo
		Smorstok, Matthew B.....	Monticello
		Thielen, Robert D.....	Saint Michael
		Thomas, William H.....	Howard Lake



# Alphabetic Roster

## Key to Symbols:

\*Deceased; †Associate, Junior Associate, Residency, Affiliate or Life Member; ‡In Service

† Aanes, Almer M.....	Red Wing	Arnold, Elmer Wm.....	Adrian	Beahr, Oliver H.....	Rochester
Aaro, Leonard A.....	Rochester	Arnuist, Andrew S.....	St. Paul	† Beals, Hugh.....	La Jolla, Calif.
Abraham, Arden L.....	Duluth	Arny, Frederick P.....	Minneapolis	Beaton, J. Gordon.....	Northfield
Abramson, Milton.....	Minneapolis	Arvidson, Carl G.....	Minneapolis	Beck, Charles J.....	No. St. Paul
† Abullarade, Jose A.....	New York, N. Y.	Arzt, Philip K.....	St. Paul	† Becker, Arnetta M.....	Lincoln, Nebr.
Achor, Richard W. P.....	Rochester	Asta, Joseph J.....	Duluth	Becker, Frederick T.....	Duluth
Adair, Albert F., Jr.....	Rochester	Athens, Alvin G.....	Duluth	Beckering, Gerrit.....	Edgerton
Adams, Bertram S.....	Hibbing	Atmore, William G.....	Rochester	Beckett, Victoria Ling.....	Detroit, Mich.
† Adams, R. Charles.....	Rochester	Aufderheide, Arthur C.....	Duluth	Bedford, Edgar Wm.....	Minneapolis
Addy, Edward R.....	Gilbert	Aulick, Ernest J.....	Minneapolis	Beck, Raymond H.....	St. Paul
Adkins, Charles D.....	Minneapolis	† Aune, Martin.....	Minneapolis	Beck, Harvey O.....	St. Paul
Adkins, Galen H.....	Anoka	† Aund, William H.....	Minneapolis	Beer, John J.....	St. Paul
Affeld, Daniel E.....	Kasson	Aurelius, J. Richards.....	St. Paul	Behmler, Frederick Wm.....	Morris
Agg, John H.....	Rochester	Ausman, Duane R.....	St. Paul	Behling, Frederick L.....	Rochester
Ahern, Eugene.....	Minneapolis	† Austrian, Sol.....	St. Paul	Behr, Orlo K.....	Crookston
Ahlft, Jacob J.....	Caledonia	Autrey, William A.....	St. Cloud	Beirstein, Samuel.....	Minneapolis
Ahola, Kenneth E.....	Hibbing			Beiswanger, Richard H.....	Minneapolis
† Ahrens, Albert E.....	St. Paul			Bell, Charles C.....	St. Paul
† Ahrens, Curtis F.....	Duluth			† Bell, E. T.....	Minneapolis
† Ahrens, Robert M.....	St. Paul			Bellomo, James.....	St. Paul
† Aitkens, Herbert B.....	LeCenter	† Baars, Conrad W.....	Camp Cook, Calif.	Belville, Titus P.....	Minneapolis
Akins, Willard M.....	Red Wing	Babb, Frank S.....	St. Paul	Belzer, Meyer S.....	Minneapolis
Albrecht, H. H.....	Chicago City	Bacus, Reno W.....	Neemind	Bender, James H.....	Brainerd
Alcorn, William J.....	Wabasso	Bacon, Donald K.....	St. Paul	Bendix, Lester H.....	Annandale
† Alden, John F.....	St. Paul	Badeaux, George I.....	Brainerd	† Benedict, William L.....	Rochester
† Alden, W. Charles.....	Kimball	Bader, J. L.....	Slayton	Benell, Otto E.....	Virginia
Alexander, Harlan A.....	Minneapolis	Baer, Walter.....	St. Paul	Benep, James L.....	St. Paul
Alexander, John D., Jr.....	Rochester	Baggenstos, Archie H.....	Rochester	Benesh, Louis A.....	Minneapolis
Aling, Charles A.....	Minneapolis	Baggenstos, Osmond J.....	Minneapolis	Benjamin, Edwin G.....	Minneapolis
Allen, Edgar V. N.....	Rochester	Bagley, Charles M.....	Duluth	Benjamin, Harold G.....	Minneapolis
Allen, George S.....	Cannon Falls	Bagley, Elizabeth C.....	Duluth	Benjamin, Walter G.....	Rochester
Allen, John H.....	Montevideo	Bagley, Russell W.....	Minneapolis	Bennett, Warren A.....	Lway, Mont.
† Allison, David D.....	Duluth	Bagley, William R.....	Duluth	† Benson, Alfred H.....	Little Falls
Alpert, Abraham E.....	Virginia	Bahn, Robert C.....	Rochester	Benthack, Elaine M.....	St. Paul
Althausen, Theodore L.....	Minneapolis	Baht, Velemir C.....	Coleraine	Bentley, Norman P.....	St. Paul
† Altnow, Hugo O.....	Coral Gables, Fla.	Bain, Robert C.....	Rochester	Bepko, Marie K.....	Cloquet
Alton, Donald G.....	Bird Island	Bair, Hugo L.....	Rochester	Berdez, George L.....	Duluth
Amatuzio, Donald S.....	Minneapolis	Baird, Joseph W.....	Minneapolis	Berg, Arnold M.....	Roseau
† Amberg, Samuel.....	Rochester	Baird, Raymond L.....	Lake Crystal	Berg, Clinton C.....	Wayzata
† Ambrus, Laszlo.....	New York, New York	Baken, Melvin P.....	Minneapolis	† Bergan, Otto.....	Clinton
Amerongen, W. W.....	St. Paul	Baker, Abe B.....	Minneapolis	Bergan, R. O.....	Roseau
Andersen, Howard A.....	Rochester	Baker, Alfred T.....	Minneapolis	Berge, David O.....	Duluth
Andersen, Silas C.....	Minneapolis	Baker, George S.....	Rochester	Berge, Harry L.....	Mora
Andersen, Arnold S.....	St. Louis Park	† Baker, Hilary R.....	Rochester	Berge, Kenneth G.....	Rochester
Andersen, Chester A.....	Hector	Baker, Jeannette L.....	Fergus Falls	Berger, Alex G.....	Minneapolis
Andersen, Chester A.....	Madison	Baker, Milton E.....	Minneapolis	Bergh, George S.....	Minneapolis
Andersen, David M.....	Minneapolis	Baker, Norman H.....	Fergus Falls	Bergh, Solveig M.....	Minneapolis
Andersen, David P.....	Austin	Bakkila, Henry E.....	Duluth	Berghund, Eldon B.....	Minneapolis
† Andersen, Edward D.....	Minneapolis	Balcome, Milton M.....	St. Paul	Bergman, Oscar B.....	St. James
Andersen, Ernest M.....	St. Cloud	Baleisli, Peter.....	Minneapolis	Bergquist, James R.....	Minneapolis
Andersen, Frank J.....	Minneapolis	† Balfour, Donald C.....	Rochester	† Berkman, David M.....	Oronoco
Andersen, Franklin C.....	Owatonna	Balfour, William M.....	Rochester	Berkwitz, Nathaniel J.....	Minneapolis
Andersen, Harold J.....	Austin	Balkin, Samuel G.....	Minneapolis	Berlin, Anthony S.....	Holbrook
Andersen, James J.....	Mankato	Balogh, Charles J.....	Minneapolis	Berman, Reuben.....	Minneapolis
Andersen, John T.....	Minneapolis	Bank, Harry E.....	San Francisco, Calif.	Bernatz Philip E.....	Rochester
Andersen, John W.....	Blue Earth	Banner, Edward A.....	Rochester	Bernier, M. J.....	No. St. Paul
Andersen, Karl W.....	Minneapolis	Barber, Tracy E.....	Austin	Bernstein, Irving C.....	Minneapolis
Andersen, Margaret C.....	Mankato	Bardon, Richard.....	Duluth	Bernstein, William C.....	St. Paul
Andersen, Mark J.....	Rochester	Bargen, J. Arnold.....	Rochester	Bessens, Alfred N., Jr.....	Minneapolis
Andersen, Markham J., Jr.....	Rochester	Barker, John D.....	Duluth	Bessens, Daniel H.....	Olivia
Andersen, Milton W.....	Rochester	Barker, Nelson W.....	Rochester	Beuning, John B.....	St. Cloud
Andersen, Richard E.....	Willmar	Barnes, Arlie R.....	Rochester	† Bever, Eugene F.....	San Francisco, Calif.
Andersen, Roger L.....	Minneapolis	Barnes, Richard E.....	Aurora	Bianco, Anthony J.....	Duluth
Andersen, U. Schuyler.....	Minneapolis	Barnett, Joseph M.....	St. Paul	† Bianco, Anthony J., Jr.....	Rochester
Andersen, Waldo P.....	Buffalo	† Barney, Leon A.....	Duluth	Bickel, Joseph F.....	St. Paul
Andersen, Wallace E.....	Minneapolis	Barno, Alex.....	St. Louis Park	Bickel, William H.....	Rochester
Andersen, Wallace E.....	Clearbrook	† Baronofsky, Ivan D.....	St. Paul	† Biedermann, Jacob.....	Thief River Falls
Andersen, Wallace R.....	Austin	Barr, James S.....	Elmore	Bieter, Raymond N.....	Minneapolis
Andersen, Werner W.....	Brainerd	Barr, Lowell C.....	Albert Lea	† Bigelow, Charles E.....	Dodge Center
Andersen, William H.....	Minneapolis	Barr, Maxwell M.....	Minneapolis	Bigler, Earl E.....	Perham
Andersen, William T.....	Minneapolis	Barr, Robert N.....	Minneapolis	Bigler, Ivan E.....	Perham
Andreasen, Einar C.....	St. Paul	Barr, Ronald W.....	Montevideo	Bilka, Paul J.....	Minneapolis
Andreasen, Rolf L.....	Minneapolis	Barrett, Earl E.....	Duluth	Billings, Ralph E.....	Franklin
Andresen, Karl D'A.....	Minneapolis	† Barron, Jesse J.....	Minneapolis	Binder, Manuel R.....	Minneapolis
Andrew, William F.....	Duluth	† Barron, Moses.....	Minneapolis	† Binet, Henry E.....	Grand Rapids
Andrews, Bernice F.....	Holdingford	† Barron, S. Steven.....	Minneapolis	† Binkhead, Newton C.....	Phoenix, Ariz.
Andrews, Robert S.....	Minneapolis	Barry, Maurice J., Jr.....	Rochester	Black, B. Marden.....	Rochester
† Andrews, Roy N.....	Mankato	† Barnes, Nellie O. N.....	St. Paul	Black, Earl J.....	St. Paul
Ankner, Frank J.....	Minneapolis	Bartholomew, Lloyd G.....	Rochester	Black, William A.....	New Ulm
Anonow, Arthur M.....	Virginia	Bartzen, Peter J.....	Duluth	Blackburn, Charles M.....	Rochester
Arends, Archibald L.....	Minneapolis	Basinger, Harold P.....	Windom	Blackmore, Sidney C.....	Biwabik
Arey, S. Lane.....	Minneapolis	Basinger, Harvey R.....	Mountain Lake	Blake, Allen J.....	Hopkins
Arhelger, Stuart.....	Minneapolis	Basinger, Homer P.....	Windom	Blake, James A.....	Hopkins
† Arko, Joseph L.....	Hibbing	Bastron, James A.....	Rochester	Blake, Paul S.....	Hopkins
Arlander, Clarence E.....	Minneapolis	Batdorf, B. Niles.....	Mankato	Blakey, Adam R.....	Osseo
Arling, Leonard S.....	Minneapolis	Bauer, Eugene L.....	St. Paul	† Bloedel, Traugott J.....	Minneapolis
Arms, James J.....	Minneapolis	Bauer, Paul G.....	Faribault	Bloomberg, Robert D.....	Minneapolis
Armstrong, Ralph S.....	Winnebago	† Baumgartner, Florian H.....	Albany	Bloomberg, William R.....	St. Paul
Arndt, Harry Wm.....	Detroit Lakes	† Baxter, Stephen H.....	Minneapolis	Bloom, Joseph.....	Silver Bay
Arneson, John F.....	Owatonna	Bayley, E. Covell.....	Lake City	Bloom, Norman B.....	Minneapolis
Arneson, Arthur I.....	Morris	Bayrd, Edwin D.....	Rochester		
Arnold, Anna W.....	Minneapolis	Beach, Northrop.....	Minneapolis		

# ALPHABETIC ROSTER

Blumberg, Henry B. Fairmont  
Blumenthal, Jacob S. Minneapolis  
Boardman, Dalmon V. Winona  
† Bock, Ronald A. St. Paul  
† Bodaski, Albert A. Tyler  
\*Boeckmann, Egil St. Paul  
Boehrer, John J. Minneapolis  
Bofenkamp, Benjamin Minneapolis  
Bofenkamp, F. William Luverne  
Bohn, Donald C. Minneapolis  
Boies, Lawrence R. Minneapolis  
Bolender, Harold L. St. Paul  
Boline, Clifford A. Battle Lake  
† Bolsta, Charles Ortonville  
† Bolstad, Owen C. Little Falls  
Bolz, J. Arnold Grand Rapids  
Boman, Paul G. Duluth  
Bonello, Frank J. St. Paul  
Bonner, John L. Eveleth  
† Bonnet, John D. Clovis, New Mexico  
Boody, George J. Jr. Sandstone  
Boone, Ervil S. Lake Luverne  
† Booth, Albert E. Minneapolis  
† Boreen, Clifton A. Minneapolis  
Borg, Joseph F. St. Paul  
Borgerson, Arthur H. Long Prairie  
† Borgerson, Egbert J. St. Paul  
Borman, Chauncey N. Minneapolis  
Borowicz, Leonard A. Minneapolis  
Bosland, Howard G. Willmar  
Bossard, John W. Rochester  
† Bossert, Clarence S. Mora  
† Boswell, J. Thornton Kenosha, Wisc.  
Botham, Richard J. Rochester  
Bottolfson, Bottolf T. Moorhead  
Bouchelle, McLemore Virginia  
† Bouma, Lewis R. St. Paul  
Bouquet, Bertram J. Wabasha  
Bouthilet, Florence J. St. Paul  
Bowen, Robert L. Hibbing  
Bowers, Dorrance Rochester  
Bowers, Gordon G. Minneapolis  
Bowers, Robert N. Lake City  
Boyd, David A. Rochester  
† Boyd, George K. Pittsburgh, Pa.  
† Boye, Lyle H. Babbitt  
Boyer, George S. Crookston  
\*Boyer, Samuel H., Sr. Duluth  
Boyer, Samuel H., Jr. Duluth  
Boynton, Ruth E. Minneapolis  
Boysen, Herbert Madelia  
Boysen, Peter Bemidji  
† Bozanich, Milosh S. Rochester  
Brasch, John W. Rochester  
† Brasch, William F. Rochester  
† Bradley, Nelson J. Willmar  
Brand, George D. St. Paul  
† Brand, William A. Redwood Falls  
Brandenburg, Robert O. Rochester  
† Branham, Donald S. Deer Park, Wisc.  
Bratholdt, James W. Watertown  
Bratrud, Arthur F. Minneapolis  
† Bratrud, Edward. Thief River Falls  
Bratrud, Theodore E. Minneapolis  
Bratrupe, Earl J. St. James  
Braun, Robert A. Rochester  
Braun, Ohrmundt C. Grand Rapids  
† Bray, Elwyn R. St. Paul  
Bray, Philip N. Duluth  
Breitenbacher, Robert B. Minneapolis  
Brekke, Harvey J. Minneapolis  
Bretzke, Carl O. Hutchinson  
Bridge, Allyn G. Minneapolis  
Bridge, Ezra V. Cannon Falls  
Briggs, John F. St. Paul  
\*Brigham, Charles F., Sr. St. Cloud  
Brigham, Charles F., Jr. St. Cloud  
Brill, Alice K. Minneapolis  
Brink, Adlai A. Baudette  
Brink, Donald M. Hutchinson  
Broadbent, James C. Rochester  
Broadie, Thomas E. St. Paul  
Brockway, Roger W. Grand Rapids  
Broders, C. W. Rochester  
Brodie, Walter D. St. Paul  
Broker, Henry M. St. Cloud  
Brooker, Warren J. Duluth  
† Brooks, Charles N. Minneapolis  
Brown, Alexander E. Rochester  
† Brown, Alexander H. Pipestone  
Brown, Edgar D. St. Petersburg, Fla.  
† Brown, Hector M. Walker  
Brown, Henry A. Rochester  
Brown, Ian A. Minneapolis  
Brown, Joe R. Rochester  
† Brown, John C. Los Gatos, Calif.  
Brown, Philip W. Rochester  
Brown, Roland G. Rochester  
Brown, William D. Minneapolis  
Bruhl, Heinz H. Faribault  
Bruntsing, Louis A. Rochester  
Brusegard, James F. Red Wing  
Bruwer, Andre J. Rochester

† Buchanan, Gerald S. Deer River  
Bucher, Foster D. Starbuck  
Buchstein, Harold F. Minneapolis  
† Buck, Frederick H. Shakopee  
Buckley, J. J. St. Paul  
Buckley, Robert P. Duluth  
Buesgens, Ralph H. Waterville  
Buie, Louis A. Rochester  
Buirge, Raymond E. Minneapolis  
Bulinski, Theodore J. St. Paul  
Bulky, Kenneth Minneapolis  
Bunker, Bevan W. Anoka  
Burch, Edward P., II St. Paul  
† Burch, Frank E. St. Paul  
Burchell, Howard B. Rochester  
† Buresh, Kenneth L. Columbus, Ga.  
Burgerman, Arthur Rochester  
Burke, Harry F. Rochester  
Burke, Edmond C. Rochester  
Burkland, Edwin C. St. Paul  
Burleigh, Edward G. Eveleth  
Burlingame, David A. St. Paul  
Burmeister, Richard O. St. Paul  
Burnett, Joseph W. New Ulm  
Burnham, Wesley H. Minneapolis  
Burns, Catherine Albert Lea  
Burns, Floyd M. Milan  
Burns, M. Alpheus Milan  
† Burns, Robert M. St. Paul  
Burrhoughs, John Townsend Rochester  
Burseth, Edgar C. Mora  
Burton, Carl G. St. Paul  
Buscher, Julius C. St. Cloud  
† Bush, Robert P. Ft. Benning, Ga.  
Bushard, Wilfred J. Minneapolis  
Busher, Herbert H. St. Paul  
Butler, John K. Cloquet  
Butt, Hugh R. Rochester  
Butturff, Carl R. Freeborn  
Butzer, John A. Mankato  
Butzer, John F. Mankato  
Buzzelle, Leonard K. Minneapolis  
Cable, Morris L. Minneapolis  
Cabot, Clyde M. Minneapolis  
Cady, Laurence H. Minneapolis  
Cain, Clark L. St. Paul  
Cain, James C. Rochester  
Cain, James H. Hoffman  
Cairns, Robert J. Redwood Falls  
† Calhoun, F. W. Albert Lea  
Calin, Stanford H. St. Paul  
Callahan, John A. Rochester  
Callahan, Francis F. St. Paul  
Calvert, Wilson C. Rochester  
Cameron, Dale C. St. Paul  
Cameron, Isabel L. Minneapolis  
Cameron, John H. Crookston  
Camp, Ray Junior Madison  
Campbell, Donald C. Rochester  
Campbell, Lowell M. Minneapolis  
Campbell, Orwood J. Minneapolis  
Canfield, Wayne W. St. Peter  
Canine, James L. So. St. Paul  
Cantrell, Glenn Rochester  
Cantwell, William F. International Falls  
Caplan, Leslie Minneapolis  
Card, William H. Minneapolis  
Cardle, George E. Brainerd  
Carey, James B. Minneapolis  
Carlander, Lester W. Minneapolis  
Carley, Walter A. St. Paul  
Carlson, Donald L. Rochester  
Carlson, Carl E. Alexandria  
Carlson, Charles V. Mound  
Carlson, John V. Westbrook  
Carlson, Lawrence Minneapolis  
Carlson, Leonard T. Minneapolis  
Carlson, Russel E. Stillwater  
Carlson, Vernon J. Moorhead  
Caron, Robert P. Minneapolis  
Carr, David T. Rochester  
Carr, William J. Minneapolis  
Carroll, John J. Winsted  
Carryer, Haddon McC. Rochester  
Cartney, Frank J. New Ulm  
Caspers, Carl G. Minneapolis  
† Catlin, John I. Buffalo  
Catlin, Theodore J. Buffalo  
† Cavanor, Frank T. Minneapolis  
Cedarleaf, Cherry B. Mahtomedi  
Ceder, Elmer T. Minneapolis  
Cepelcha, Stanley F. Redwood Falls  
Cervenka, Charles F. New Prague  
† Cesnik, Robert J. St. Cloud  
Chadborn, Charles R. St. Paul  
Chadborn, Wayne A. St. Cloud  
Chalgren, William S. St. Paul  
Challman, S. Alan Minneapolis  
† Chambers, Winslow C. Blue Earth  
Chatterton, Carl C. St. Paul  
Chavez, Demetrio A. Minneapolis

Chermak, Francis G. International Falls  
Chesler, Merrill D. Minneapolis  
\*Chesley, Albert J. Minneapolis  
Child, Sherman B. Minneapolis  
Childs, Donald S., Jr. Rochester  
Chisholm, Tague C. Minneapolis  
Chittum, John R. Aurora  
Christensen, Clarence H. Duluth  
Christensen, Eli E. Winona  
† Christensen, Mentor St. Paul  
Christensen, Norman A. Rochester  
† Christensen, Philip D. St. Paul  
Christiansen, Andrew St. Paul  
Christianson, Harold A. Jackson  
Christianson, Bruce W. Rochester  
Christoferson, Kent W. Rochester  
Chunn, Stanley S. Willmar  
Ciriacy, Edward W. Rochester  
Clagett, O. Theron Rochester  
Clapp, Hubert D. Crookston  
Clark, Clarence L. Duluth  
Clark, Edward C. Rochester  
Clark, Elizabeth A. Duluth  
Clark, Harry B. St. Cloud  
Clark, Henry B., Jr. Minneapolis  
Clark, Ivan T. Duluth  
Clark, Leslie Wm. Spring Valley  
Clark, Malcolm D. Minneapolis  
Clarke, John W. Watertown  
Clay, Lyman B. Minneapolis  
Claydon, Howard F. Red Wing  
Cleaves, William D. Sauk Centre  
† Clement, John B. Lester Prairie  
Clifford, George W. Alexandria  
Clifton, Theodore A. Chaffield  
Closuit, Frederick C. Aitkin  
Cochrane, Byron B. St. Paul  
Cochrane, Ray F. Minneapolis  
Coddon, Walter D. St. Paul  
Coe, John L. Minneapolis  
Cohen, Bernard A. Minneapolis  
Cohen, Ellis N. Minneapolis  
Cohen, Ephraim B. Minneapolis  
Cohen, Maynard M. St. Paul  
Cohen, Sumner S. Oak Terrace  
Colby, M. Y., Jr. Rochester  
Colby, Woodard L. St. Paul  
Cole, James S. Minneapolis  
Cole, Wallace H. St. Paul  
Coleman, John B. St. Paul  
Coll, James J. Duluth  
† Collie, Henry G. St. Peterburg, Fla.  
† Collins, Arthur N. Duluth  
Collins, Joseph S. Wabasha  
Combacker, Leon C. Fergus Falls  
Comfort, Mandred W. Rochester  
Compton, Russell F. Rochester  
\*Condit, William H. Minneapolis  
Conley, Francis W. Duluth  
Conley, Robert H. Mankato  
Connolly, Coleman J. St. Paul  
Connolly, Daniel C. Rochester  
† Connolly, Joseph P. So. St. Paul  
Connor, Charles E. St. Paul  
Cook, C. Kenneth St. Paul  
Cook, Edward N. Rochester  
Cook, Jay M. Staples  
† Cook, Roderick W., Jr. Rochester  
Cooley, Jack C. Rochester  
Coombs, Carl H. Cass Lake  
Cooper, Charles C. St. Paul  
† Cooper, Maurice D. Winnebago  
Cooper, Robert R. Minneapolis  
Cooper, Talbert Rochester  
† Cope, Hershel B. Rochester  
Corbin, Kendall B. Rochester  
Cornelia, Albert D. Minneapolis  
† Corrae, Dale H. Minneapolis  
Corrigan, Cyril J. Minneapolis  
† Coseriu, Vasile G. St. Paul  
Cosgriff, James A., Sr. Olivia  
Cosgriff, James A., Jr. Olivia  
Cottone, Francis John Rochester  
Coulter, Harold E. Madelia  
Countryman, Roger S. St. Paul  
Covenry, Markham B. Rochester  
Covenry, William D. Duluth  
Covey, Kenneth W. Rochester  
Cowan, Donald W. Minneapolis  
Cowan, George M. Duluth  
Craig, Clair C. International Falls  
Craig, David M. St. Paul  
Craig, M. Elizabeth Minneapolis  
† Craig, Richard M. Dayton, Ohio  
Craig, Winchell McK. Rochester  
Cranmer, Richard R. Minneapolis  
Cranston, Robert W. Minneapolis  
Greedy, Charles D. Minneapolis  
\*Creighton, Ralph H. Minneapolis  
Crichtfield, Lyman R. St. Paul  
Cronwell, Bernhard J. Austin  
Crowley, James H. St. Paul  
Crudo, Vincent D. St. Paul  
Crumbley, James J., Jr. Tampa, Fla.

# ALPHABETIC ROSTER

Crump, James W.	St. Paul	† DuBois, Julian F., Sr.	Sauk Centre	Erskine, Gordon M.	Grand Rapids
Culligan, John M.	St. Paul	DuBois, Julian F., Jr.	Sauk Centre	† Ertel, Edward Q.	Ellendale
Culligan, Leo C.	Minneapolis	Duff, Edwin R.	Minneapolis	Esensten, Sidney	Minneapolis
Culp, Ormond S.	Rochester	Dummer, Donald J.	Minneapolis	† Eshelby, E. C.	St. Paul
Culver, L. G.	St. Paul	Duncan, James W.	Moorhead	† Esser, Robert A.	St. Charles, Ill.
Cundy, Donald T.	Minneapolis	† Dunsay, Neil S.	Northfield	† Estes, J. Earle	Rochester
Curtis, Rauen A.	LeCenter	Dunlap, Earl H.	Minneapolis	Extrem, Ralph L.	Fergus Falls
Cushing, Robert L.	Brainerd	Dunn, Jack, Jr.	Clovis, New Mexico	Extrem, Robert D.	Fergus Falls
† Cutts, George	Minneapolis	Dunn, James N.	St. Paul	† Eusterman, George B.	Rochester
Dady, Elmer E.	Minneapolis	Dunn, Robert C.	St. Paul	Eustermann, John J.	Minneapolis
† Daehlin, Rolf	Fairchild, Washington	Dupont, Joseph A.	Excelsior	Evans, Edward T.	Minneapolis
Daggett, Donald R.	Minneapolis	Duryea, Marbury	Minneapolis	† Evans, Harold W.	Rochester
Dahl, Elmer O.	Minneapolis	Duryea, Willis M.	Minneapolis	Evans, Leslie	Sank Rapids
Dahl, James C.	Minneapolis	Duryea, Willis M., Jr.	Minneapolis	Evans, Robert D.	Minneapolis
Dahl, John A.	Minneapolis	DuShane, James W.	Rochester	† Everts, Arrah B.	Rochester
Dahlin, David C.	Rochester	† Dutton, C. E.	Minneapolis	† Evensta, John B.	Grand Rapids
† Daignault, Oscar	Benson	Dvorak, Benjamin A.	Minneapolis	Ewen, Edgar F.	Rochester
Dale, Lester N.	Red Lake Falls	Dwan, Paul F.	Minneapolis	Faber, John E.	Rochester
Daly, David	Rochester	Dworsky, Samuel D.	Minneapolis	Fabi, Mario Nestor	Rochester
† Daniel, Donald H.	Minneapolis	Dwyer, John J.	Duluth	† Fahr, George E.	Minneapolis
Danielson, Karl A.	Litchfield	Dyer, John Allen	Rochester	† Failor, Harlan J.	Minneapolis
Danielson, Lennox	Litchfield	Dysterheft, Adolf F.	Gaylord	Fallon, Virgil T.	Dawson
Danyluk, Michael	Minneapolis	Earl, George A.	St. Paul	Falls, John L.	Red Wing
Daugherty, Guy W.	Rochester	Earl, John R.	St. Paul	Fansler, Walter A.	Minneapolis
David, Reuben	Minneapolis	Eaton, Lealdes M.	Rochester	Farkas, John V.	St. Paul
Davis, Austin C.	Rochester	Eberly, Tobe S.	Benson	Farley, Frank G.	Hibbing
Davis, Edward V.	St. Paul	† Eberlin, Edward A.	Glenwood	Fasbender, Herman T.	Hastings
Davis, George D.	Rochester	Eckdale, John E.	Marshall	Faucett, Robert L.	Rochester
Davis, Jay C.	Minneapolis	Eckman, Philip F.	Duluth	Faulconer, Albert, Jr.	Rochester
Davis, Lloyd T.	Wadena	Eckman, Ralph J.	Duluth	Fawcett, Arthur M.	Renville
Davis, Luther F.	Wadena	Edelmann, Robert B.	Rochester	Fawcett, Keith R.	Duluth
Davis, Raymond D.	Waseca	Eder, Walter P.	Minneapolis	Fedor, Robert D.	Litchfield
Davis, William I.	Mound	Edwards, Jesse E.	Rochester	Fee, John G.	St. Paul
Dawson, James R.	St. Paul	Edwards, Joseph W.	St. Paul	Feeney, John M.	Minneapolis
Dawson, Louis D.	Worthington	Edwards, Lloyd G.	St. Paul	Feigal, David W.	Wayzata
Dearing, William H.	Rochester	Edwards, Thomas J.	St. Paul	Feigal, William M.	Thief River Falls
† Decker, Barry	Rochester	† Egge, Sanford G.	Albert Lea	Feinberg, Milton	St. Paul
Decker, Charles H.	St. Paul	† Eickson, Charles T.	St. Paul	Feinberg, Philip	Minneapolis
Decker, David G.	Rochester	Ehrenberg, Claude J.	Minneapolis	Feinberg, Samuel B.	Minneapolis
DeGeest, James H.	Goodhue	Ehrlich, S. Paul	Minneapolis	Feinstein, Julius Y.	Minneapolis
DeKruif, Hendrik	Fergus Falls	Eich, Matthew A.	Minneapolis	Felder, David A.	St. Paul
† Delmore, John L., Sr.	Roseau	Eichhorn, Edmund P., Jr.	Minneapolis	Feldmann, Floyd M.	New York, N. Y.
Delmore, John L., Jr.	Roseau	Eide, O. A.	Hancock	Felton, Arthur J.	St. Paul
† Delmore, Robert J.	New Orleans, La.	Eiler, John	Park Rapids	Fellows, Manley F.	Duluth
del Plaine, Carlos W.	Minneapolis	Eisenman, Walter	Hibbing	Fenger, Ejvind P. K.	Oak Terrace
Demo, Robert A.	Albert Lea	Eisenstadt, David H.	Minneapolis	Ferguson, William C.	Walnut Grove
Deraul, Benjamin I.	St. Paul	Eisenstadt, William S.	Minneapolis	Ferrand, Paula T.	Moose Lake
Deters, Donald C.	St. Paul	Eitel, George D.	Duluth	Ferrell, Clarence R.	Grand Rapids
Detjen, Edward D.	Bigfork	† Ekblad, John W.	Duluth	Ferris, Deward O.	Rochester
Devereaux, Thomas J.	Wayzata	Ekland, Carl D.	Duluth	Fesenmaier, Otto B.	New Ulm
Devine, Kenneth D.	Rochester	Ekstrand, LeRoy M.	Wabasha	Fessler, Harold H.	St. Paul
DeWeerd, James H.	Rochester	Eli, Earl W.	Minneapolis	† Fetzek, Albert D.	Great Falls, Mont.
Deweese, Wilford J.	Bemidji	Elias, Frank J.	Duluth	Feuling, John C.	Duluth
Dewey, Donald H.	Owatonna	Elkins, Earl C.	Rochester	Fidelman, Norman E.	Foley
Dickinson, L. S.	Rochester	Ellertson, Leonard M.	Albert Lea	Field, Anthony H.	Farmington
† Dickinson, Roy W.	Monterey, Calif.	Ellinger, Albert J.	Willmar	Field, Charles W.	Minneapolis
† Dickson, Franklin H.	Proctor	Elliot, Harold J.	Havfield	Fifer, William R.	St. Paul
† Dickson, Thomas H.	St. Paul	Ellis, Earl Wm.	Elgin	Fifield, Malcolm M.	Duluth
Diefenbach, Eugene J., Jr.	Minneapolis	Ellis, F. Henry	Rochester	Figi, Frederick A.	Rochester
Diehl, Harold S.	Minneapolis	Ellison, David E.	Minneapolis	Fingerman, David L.	Minneapolis
Dierker, Heinrich	Minneapolis	Ellison, Ellis	Minneapolis	Fink, Daniel L.	St. Paul
Diessner, Ardell W.	Redwood Falls	Ellison, Frank B.	Monticello	Fink, Leo W.	Minneapolis
Diessner, Grant R.	Rochester	Elrod, Calvin R.	Long Lake	Fink, Walter H.	Minneapolis
Diessner, Henry D.	Rochester	† Else, James R.	Glenwood	Finkelburg, William O.	Winona
† Dille, Donald E.	Igloo, S. D.	† Elstner, Howard L.	Rochester	Fisch, Herbert M.	Austin
Dines, David E.	Rochester	† Ely, Orriman S.	So. St. Paul	Fischer, John R.	Bloomington
Dixon, Claude F.	Rochester	Emanuel, Karl Wm.	Duluth	Fischer, Marion McC.	Duluth
Dobson, M. W.	Mankato	Emerson, Edward C.	St. Paul	Fischer, Robert F.	St. Paul
Dockerty, Malcolm B.	Rochester	Emerson, Edwin E.	Oakais	Fisher, Dan W.	St. Paul
Dodds, William Clark	Detroit Lakes	Emmett, John L.	Rochester	Fisher, Isadore I.	Minneapolis
Dodge, Henry W., Jr.	Rochester	Emmons, R. W.	St. Paul	Fisketti, Henry	Duluth
Doherty, Elmer M.	New Prague	† Emond, Albert J.	Farmington	† Fitzgerald, Don F.	Wayzata
Dokken, James H.	Windom	† Emond, Joseph S.	Farmington	Fitzsimons, William E.	Brainerd
Doman, Victor Wm.	Lakefield	† Emdress, Edward K.	St. Paul	† Fielstad, Christian A.	Minneapolis
Doms, Vernon A.	Elbow Lake	Engberg, Edward J.	Faribault	Flanagan, Harold F.	St. Paul
Donaldson, Charles S.	St. Cloud	Engel, Joseph P.	Minneapolis	Flanagan, Leonard G.	Austin
Donatelle, Edward P.	Minneapolis	Engelhart, Peter C.	Minneapolis	Flancher, Leon H.	Crookston
Donoghue, Francis E.	Rochester	Englund, Elvin F.	Minneapolis	Flannery, Hubert F.	St. Paul
Donovan, Daniel L.	Albert Lea	Engstrand, Oscar J.	Minneapolis	Flatt, John R.	Wabasha
Dordal, John	Sacred Heart	Engstrom, Denton P.	Minneapolis	Fleeson, William H.	Minneapolis
Dorge, Richard I.	Minneapolis	Engstrom, Robert	St. Paul	† Fleming, Aloysius	Madison, N. J.
† Dornblaser, Harry B.	Los Gatos, Calif.	Ensmuth, Oscar E.	Rochester	Fleming, Dean S.	Hookins
Dorsey, George C.	Minneapolis	Ensrud, Earl Richard	Rochester	† Fleming, Thomas N.	St. Cloud
Douglas, Kenneth W.	Sandstone	† Eppard, Raymond M.	Cloquet	Flesche, Bernard A.	Lake City
Douglas, Bruce E.	Rochester	Epstein, John H.	Rochester	Flehr, Richard R.	Minneapolis
† Dovenmuehle, Robert H.	Durham, N. C.	† Erdal, Ove A.	Albert Lea	Flinn, Edmund B.	Minneapolis
Downing, William C.	Crookston	† Erich, John B.	Rochester	† Flinn, Thomas B.	Redwood Falls
† Doxey, Gilbert L.	Minneapolis	† Erickson, Alvin O.	Long Prairie	Floersch, Adrian J.	Remer
Doxsee, George C.	Chisholm	† Erickson, Clifford O.	Minneapolis	Flom, Reynold P.	Glencoe
Doyle, James R.	Rochester	† Erickson, Donald J.	Rochester	† Flom, Robert S.	St. Paul
Doyle, Lawrence O.	Minneapolis	† Erickson, Eskil	Halstad	† Flor, Frank S.	Columbus, Ga.
Drake, Carl B.	St. Paul	† Erickson, George P.	Hibbing	Florine, Martin C.	Rochester
† Drake, Charles R.	Minneapolis	† Erickson, Laurence F.	Minneapolis	Flynn, Bernard F.	Janesville
† Dredge, Homer P.	Sandstone	† Erickson, Myron E.	Minneapolis	Flynn, L. L., Jr.	Hibbing
Dredge, Thomas H.	St. Cloud	† Erickson, Reuben F.	Minneapolis	† Fogarty, Charles W., Sr.	St. Paul
Drexler, George W.	Blue Earth	† Erickson, Vernon D.	Grand Rapids	† Fogarty, Charles W., Jr.	St. Paul
Drill, Herman E.	Hopkins	† Ericson, Reinhold M.	Wayzata	† Fogelberg, Emil J.	St. Paul
† Drips, Della G.	Oronoco	† Ericson, Swan	Los Angeles, Calif.	† Foker, Leslie W.	Minneapolis
Dry, Thomas J.	Rochester	† Ernest, George C. H.	St. Petersburg, Fla.	Foley, Frederic E. B.	St. Paul
Dubbe, Frederick H.	New Ulm	Ensfield, Murray P.	St. Paul	Folken, Frank G.	Albert Lea



# ALPHABETIC ROSTER

Folsom, Louis B. Minneapolis  
 Ford, Burton C. Marshall  
 Ford, William H. Minneapolis  
 Forsythe, James R. Little Falls  
 Fortier, George M. A. Mankato  
 Fortier, Rene G. Rochester  
 Foss, Edward L. Minneapolis  
 Foster, Orley W. Rochester  
 Foulk, William T., Jr. Minneapolis  
 Fowler, Lucius Haynes. Minneapolis  
 † Fox, Donald P. Tanganyika, East Africa  
 Fox, James Rogers. Minneapolis  
 Fox, LeRoy J. St. Paul  
 † Franchere, Frederick Wm. Lake Crystal  
 Francis, David W. Morristown  
 Frane, Donald B. Minneapolis  
 Franklin, Gordon W. Northome  
 Franklin, George M. Minneapolis  
 Frederickson, Alice C. Willmar  
 Fredricks, Merriam G. Duluth  
 Freeman, Charles D., Jr. St. Paul  
 Freeman, Craig. Minneapolis  
 Freeman, Donald W. St. Louis Park  
 Freeman, Gerald I. St. Paul  
 † Freeman, John P. Glenville  
 † Freidman, Louis L. St. Paul  
 French, Bayard T. Hibbing  
 French, Lyle A. Minneapolis  
 Frethem, Allen A. Rochester  
 Frey, Richard J. Minneapolis  
 Friberg, Joseph. Minneapolis  
 Fricke, Robert E. Rochester  
 Fried, Louis A. Minneapolis  
 Friedell, Aaron. Minneapolis  
 Friedell, George. St. Louis Park  
 Friedman, Harry S. Minneapolis  
 \* Friedman, Jack. Minneapolis  
 Friend, Charles A. New Ulm  
 Fritzsche, Albert. New Ulm  
 Fritzsche, Carl J. New Ulm  
 Fritzsche, Theodore R. New Ulm  
 Fritz, Wallace L. St. Paul  
 Froats, Charles W. St. Paul  
 † Frost, Edward H. Willmar  
 Frost, John B. Minneapolis  
 Frost, Russell H. Oak Terrace  
 Frykman, Howard M. Minneapolis  
 Frys, Russell N. Mankato  
 † Fugina, George R. Minneapolis  
 Fuller, Alice H. Minneapolis  
 Fuller, Benjamin F. St. Paul  
 Fuller, Josiah. Duluth  
 Funk, Victor K. Oak Terrace  
 Furlow, William L. Faribault  
 Furman, Lucie C. Minneapolis  
 † Furr, Leo O. Long Beach, Calif.  
 Gaard, Richard C. Minneapolis  
 Gaebie, Milton B. Clara City  
 Gaida, Joseph B. St. Cloud  
 † Gallagher, Bernard J. Waseca  
 Gallett, Lester E. Minneapolis  
 Galligan, John J. St. Paul  
 † Galligan, Margaret M. Minneapolis  
 † Gambill, Carl M. Rochester  
 Gambill, Earl E. Rochester  
 Gamble, Elbert J. Brooklyn  
 Gamm, Edgar R. Triumph  
 Gammell, John H. Minneapolis  
 Garmella, Joseph J. Minneapolis  
 Garbrecht, Arthur Wm. St. Paul  
 † Gardner, Gawinn B. Rochester  
 Gardner, Jack K. Ceylon  
 † Gardner, John U. Rochester  
 Gardner, Victor H., Sr. Fairmont  
 Gardner, Walter P. St. Paul  
 Garlock, Arthur V. Bemidji  
 Garlock, Dewitt H. Highlands, Calif.  
 Garrow, Douglas M. St. Paul  
 Garske, George L. Minneapolis  
 Garten, Joseph L. Minneapolis  
 Garvey, James T. Minneapolis  
 Gastineau, Clifford F. Rochester  
 Gatchell, Frank G. Rochester  
 Gaunt, William D. Rochester  
 Gavis, David. Minneapolis  
 Gee, Vernon R. Rochester  
 Gehlen, Joseph N. St. Paul  
 Geib, Marvin J. Moorhead  
 Geiser, Peter M. Alexandria  
 Geraci, Joseph E. Rochester  
 Geurs, Benjamin R. Mankato  
 Ghormley, Ralph K. Rochester  
 † Ghostley, Mary C. Bemidji  
 Gibbs, Edward C. St. Paul  
 Gibbs, Robert W. Minneapolis  
 Giebenhain, John N. Minneapolis  
 Giere, Joseph C. Minneapolis  
 Giere, Richard W. Minneapolis  
 Giere, Silas W. Benson  
 \* Giesen, Allan F. Starbuck  
 † Giffin, Herbert Z. Rochester

Giffin, Mary E. Rochester  
 Gifford, R. W., Jr. Rochester  
 Gilbert, Maurice G. Minneapolis  
 Gill, Theodore. Albert Lea  
 Gillespie, Delmar R. St. Paul  
 Gillespie, Malcolm G. Duluth  
 Gilman, Lloyd C. Willmar  
 † Gilmore, Rowland. Crookston  
 † Gilsdorf, Donald A. New York, N. Y.  
 † Ginsberg, Benjamin A. Minneapolis  
 † Girvin, Robert L. San Antonio, Texas  
 † Gislason, Richard B. Minneapolis  
 Gislason, Solvig B. St. Peter  
 Gjerde, William P. Lake City  
 Glabe, Robert A. Plainview  
 Glaeser, John H. Minneapolis  
 Gleason, Wallace A. St. Paul  
 † Glew, William Bainbridge. Rochester  
 † Glick, Dallas Donald. Rochester  
 Glueck, Bernard C., Jr. Minneapolis  
 Goblirsch, Andrew P. Sleepy Eye  
 Goehrs, Gilman H. St. Cloud  
 † Goehrs, Henry W. St. Cloud  
 Goehrs, Homer R. St. Cloud  
 Goetz, Frederick C. Minneapolis  
 Goldberg, Isadore M. Minneapolis  
 Goldish, Daniel R. Duluth  
 Goldish, Robert J. Duluth  
 Goldman, Theodore I. Minneapolis  
 Goldner, Meyer Z. Minneapolis  
 Goldsmith, Joseph W. St. Paul  
 † Goltz, Norman P. Rochester  
 † Goltz, Edward V. St. Paul  
 Goltz, Robert W. Minneapolis  
 Good, C. Allen, Jr. Minneapolis  
 Good, Hoff D. Minneapolis  
 Good, Roy H. Glenwood  
 Goodchild, William R. Minneapolis  
 Goodman, Charles E. Virginia  
 Gordon, Philip E. Minneapolis  
 Gordon, Sewell S. St. Louis Park  
 Gowan, Lawrence R. Duluth  
 † Grace, Joseph B. Rochester  
 † Grahek, Archibald W. Chisholm  
 Granquist, Richard D. Ely  
 Grant, Hendrie C. Coleraine  
 Grant, John C. St. Paul  
 Grant, John C. Sauk Centre  
 Grant, Suzanne. Minneapolis  
 † Gratzek, Frank R. E. Minneapolis  
 Gratzek, Thomas. St. Paul  
 Grau, R. K. St. Paul  
 Graves, Richard B. Red Wing  
 † Gray, Edward F. White Bear Lake  
 † Gray, Frank D. Marshall  
 † Gray, Howard K. Rochester  
 Gray, Royal C. Minneapolis  
 Green, Paul A. Minneapolis  
 Green, Robert A. St. Louis Park  
 Greenberg, Albert J. Minneapolis  
 Greene, Daniel E. Thief River Falls  
 Greene, Laurence F. Rochester  
 Greenfield, Irving. Minneapolis  
 † Greenfield, William T. Cokato  
 † Greishiemer, Esther M. Philadelphia, Pa.  
 Gridley, John P. Arlington  
 Griebie, Grant L. Brownston  
 Griffin, John W. Bemidji  
 Griffin, R. P. Benson  
 † Griffiths, Edward K. St. Paul  
 Grimes, Burton P. St. Peter  
 Grimes, Marian. Minneapolis  
 Grinnell, Francis J. Minneapolis  
 Grindlay, John H. Rochester  
 Grinley, Andrew V. Grand Rapids  
 Grise, William B. Austin  
 Groch, Sigmund N. Rochester  
 Grohs, William H. Duluth  
 Gronvall, Paul R. Minneapolis  
 Groschupf, Theodore P. Bemidji  
 Grose, Frederick N. Clarissa  
 Gross, John B. Rochester  
 Grotting, John K. Minneapolis  
 Grundset, Ole J. Montrose  
 Guilbert, G. D. Minneapolis  
 Guilloile, Pierre J. Delano  
 Gullickson, Glenn, Jr. Minneapolis  
 † Gullickson, Andrew. Minneapolis  
 Gully, Raymond J. Cambridge  
 Gunlaugson, Frederick G. Minneapolis  
 Gushurst, Edward G. Minneapolis  
 Gustason, Harold T. Minneapolis  
 Guy, Jack A. New London  
 Haas, Jack F. Fairfax  
 Haavik, John E. Duluth  
 Habein, Harold C., Sr. Rochester  
 † Habein, Harold C., Jr. Wiesbaden, Germany  
 Haberer, Helen R. Minneapolis  
 Haberland, Lyle F. Minneapolis

† Haberman, Emil. Osakis  
 Haes, Julius E. Mankato  
 Hagedorn, Albert B. Rochester  
 Hagen, John D. Austin  
 Hagen, Kristofer. Minneapolis  
 † Hagen, Olaf J. Moorhead  
 Hagen, Paul S. St. Paul  
 Hagen, Wayne S. Minneapolis  
 † Haines, Samuel F. Rochester  
 Hakanson, Erick Y. St. Paul  
 Halbert, John J. Duluth  
 Halenbeck, Philip L. St. Cloud  
 Hall, Barnard. St. Paul  
 Hall, Harry B. Minneapolis  
 Hall, Wendell H. Minneapolis  
 Hall, William E. Maple Lake  
 Halberg, Olav E. Rochester  
 † Hallenbeck, Dorr F. Rochester  
 † Hallenbeck, George A. Rochester  
 † Halliday, Phillip V. Duluth  
 Hallin, Roger P. Worthington  
 Halloran, Walter H. Jackson  
 Halme, William B. Wadena  
 Halper, Bernard. Hibbing  
 Halpern, David J. Brewster  
 Halpin, Joseph E. Rush City  
 Halvorsen, Donald E. Winnebago  
 Halvorsen, Daniel K. Owatonna  
 Halvorson, James W. Zumbrota  
 Hamilton, John S. Fergus Falls  
 Hamel, Joseph L. Mankato  
 Hammer, Lawrence M. Minneapolis  
 Hammes, Ernest M., Sr. St. Paul  
 Hammes, Ernest M., Jr. St. Paul  
 † Haney, Claude L. Duluth  
 Hankerson, Robert G. Minnesota Lake  
 Hanlon, David G. Rochester  
 Hannah, Hewitt B. Minneapolis  
 † Hannon, Donald W. St. Paul  
 Hanner, Ralph D. International Falls  
 Hansen, Cyrus O. Minneapolis  
 Hansen, Erling W. Minneapolis  
 Hansen, Olga S. Minneapolis  
 Hansen, Robert E. Hibbing  
 Hansen, Rollin M. Minneapolis  
 Hansen, Theodore M. Albert Lea  
 † Hanson, Adolph M. Faribault  
 Hanson, Ernest O. Cloquet  
 Hanson, Everett C. New York Mills  
 Hanson, Harlow J. Minneapolis  
 Hanson, Henry V. Minneapolis  
 Hanson, John W. Northfield  
 Hanson, LeRoy W. Pelican Rapids  
 Hanson, Lewis. Frost  
 Hanson, Malcolm B. Minneapolis  
 Hanson, Mark C. L. Minneapolis  
 Hanson, Norbert O. Rochester  
 Hanson, William A. H. Minneapolis  
 Happe, Lawrence J. Minneapolis  
 Harada, Thomas T. Lake Wilson  
 Harbaugh, John T. St. Paul  
 Hardy, William M. Rochester  
 Hargrave, Malcolm M. Minneapolis  
 Harmon, Gaius E. St. Paul  
 Harrington, Stuart W. Rochester  
 Harrington, Vernon A., Jr. Duluth  
 Harris, Carl N. Hibbing  
 Harris, Leon D. Minneapolis  
 Harris, Lloyd E. Rochester  
 Harrison, Percy W. Worthington  
 Hart, William E. Monticello  
 Hartiel, Herbert A. Montevideo  
 Hartiel, William F. St. Paul  
 Hartig, Marjorie. St. Paul  
 Hartjen, Jason K. Bemidji  
 † Hartley, Everett C. St. Paul  
 Hartman, Evelyn E. Minneapolis  
 Hartman, Howard R. Rochester  
 Hartnagel, G. F. Red Wing  
 Hartbridge, Virginia B. Rochester  
 Hartung, Elmer H. Claremont  
 Hartwich, Roger F. Winona  
 Hass, Frederick M. Minneapolis  
 † Hassett, Roger C. Mankato  
 Hastings, DeForest R. Minneapolis  
 Hastings, Donald W. Minneapolis  
 † Hatch, Walter E. Duluth  
 Hauge, Erling T. Minneapolis  
 Hauge, Malvin L. Clarkfield  
 Haugen, John A. Minneapolis  
 Hauser, Donald C. Minneapolis  
 Hauser, George W. Minneapolis  
 Hauser, Victor P. St. Paul  
 Havel, Robert J. Minneapolis  
 Haven, Walter K. Minneapolis  
 † Havens, John G. W. Austin  
 Hawkinson, Raymond P. Minneapolis  
 Hawley, George M. B. II. Red Wing  
 Hay, Lyle J. Minneapolis  
 † Hayes, Albert F. St. Paul  
 † Hayes, James M. Minneapolis  
 Hayles, Alvin B. Rochester



# ALPHABETIC ROSTER

Hays, Albert T. Minneapolis  
Head, Douglas P. Minneapolis  
Hebel, Robert Minneapolis  
Hebel, Milton B. Chaska  
Heck, Frank J. Rochester  
Heck, William W. St. Paul  
Hedberg, Gustaf A. Nopeming  
Hedemark, Homer H. Ortonville  
Hedemark, Truman A. Ortonville  
Hedenstrom, Frank G. St. Paul  
Hedenstrom, Paul H. Cambridge  
Hedenstrom, Philip C. Marshall  
Hedin, Raymond F. Red Wing  
Hedlund, Charles J. Minneapolis  
Hedrick, William L. Rochester  
Hegard, William G. Alexandria  
Hegge, Olav H. Austin  
Hegge, Rolv S. Austin  
Heim, Wm. Conrad. Cook  
Heiberg, Emmett A. Fergus Falls  
Heiberg, Olaf M. Worthington  
Heilig, William R. St. Paul  
Heilman, Dorothy M. H. San Diego, Calif.  
Heilman, Fordyce R. Rochester  
Heimark, John J. Mankato  
Heimark, Julius J. Fairmont  
Heinz, Ivy B. Shakopee  
Heinz, Lawrence H. Shakopee  
Heinzerling, Carl R. Chaska  
Heise, Carl vR. Winona  
Heise, Paul vR. Winona  
Heise, Philip vR. Winona  
Heldland, John W. Spring Grove  
Heller, Edgar E. Mankato  
Helmholz, H. F. Rochester  
Helwig, Howard K. Pelican Rapids  
Helwig, Karl L., Jr. Kerkhove  
Hempel, Dean J. Minneapolis  
Hempstead, Bert E. Rochester  
Hench, Philip S. Rochester  
Henderson, Arthur J. G. No. St. Paul  
Henderson, Edward D. Rochester  
Henderson, John W. Rochester  
Henderson, Lowell L. Rochester  
Henderson, Robert Earl. Rochester  
Hendrickson, John F. Minneapolis  
Hengstler, William H. St. Paul  
Henrikson, Earl C. Minneapolis  
Henry, Clarence J. Milaca  
Henry, Clifford E. Kirksville, Mo.  
Henry, J. E. Milaca  
Henry, Kenneth G. Owatonna  
Henry, Martin R. St. Peter  
Hensel, Charles N. St. Paul  
Hepper, Norman G. Rochester  
Herbert, Edna E. Minneapolis  
Herbert, Willis L. St. Paul  
Herman, Samuel M. St. Paul  
Hermann, Harold W. Minneapolis  
Hermanson, Peter E. Hendricks  
Heron, Roy C. St. Paul  
Herrmann, Edgar T. St. Paul  
Hertel, Garfield E. Austin  
Hertz, Myron J. St. Paul  
Hesla, Inman A. Austin  
Hewitt, Edith S. Rochester  
Hewitt, Richard M. Rochester  
Heyerdale, Oscar C. Rochester  
Higgins, John A. Rochester  
Higgins, John H. Minneapolis  
Higgs, Walter W. Park Rapids  
Hilding, Anderson C. Duluth  
Hilger, Andrew Wm. St. Paul  
Hilger, Jerome A. St. Paul  
Hilger, Laurence D. St. Paul  
Hilgermann, George O. Minneapolis  
Hilker, Marcus D. St. Paul  
Hill, Earl Minneapolis  
Hill, Elmer M. Minneapolis  
Hill, Frederick E. Riverside, Calif.  
Hill, John P. Virginia  
Hill, John R. Rochester  
Hill, Richard Woolsey. Rochester  
Hillis, Samuel J. Minneapolis  
Hinkley, Robert G. Minneapolis  
Hinderaker, Harris P. Bird Island  
Hines, Edgar A., Jr. Rochester  
Hiniker, Louis P. St. Paul  
Hinz, Walter E. Willmar  
Hirschboeck, Frank J. Duluth  
Hirsh, Stanton A. Crookston  
Hirshfeld, Frank R. Minneapolis  
Hitchock, Claude R. Minneapolis  
Hochfiter, John J. St. Paul  
Hodapp, Robert V. Willmar  
Hodgson, Corrin H. Rochester  
Hodgson, Jane E. St. Paul  
Hodgson, John R. Rochester  
Hochm, David Holdingford  
Hoepfer, Philip G. Mankato  
Hoff, Herbert O. Duluth  
Hoffbauer, Frederick W. Minneapolis

Hoffert, Henry E. Minneapolis  
Hoffman, Roy A. Minneapolis  
Hoffman, Walter L. Minneapolis  
Hoganson, Donald E. Bemidji  
Hoidal, Andrew Tracy  
Holcomb, Joel T. Marine-on-St. Croix  
Holcomb, O. Wm. St. Paul  
Holian, Darwin K. Albert Lea  
Holland, C. R. Rochester  
Hollands, William H. St. Fisher  
Hollinshead, W. H. Rochester  
Holm, Donald F. Benson  
Holman, Colin B. Rochester  
Holmberg, Conard J. Minneapolis  
Holmberg, L. J. Canby  
Holmen, Robert W. St. Paul  
Holmes, Alva E. Rush City  
Holmstrom, Carl H. Warren  
Holt, John E. St. Paul  
Holzapfel, Fred C. Minneapolis  
Hom, Leong Y. W. North Chicago, Ill.  
Honath, Donald H. Owatonna  
Hooper, Worth A. Long Beach, Calif.  
Hoover, Norman Virginia  
Hopkins, G. Wendell. St. Paul  
Horns, Howard L. Minneapolis  
Horns, Richard C. Minneapolis  
Horton, Bayard T. Rochester  
Hottinger, Raymond C. Janesville  
Houghum, Arvid J. Lake Park  
Houkom, Bjarne Minneapolis  
Houkom, Samuel S. Duluth  
Houle, Rollin J. New Brighton  
House, Zachariah E. Burbank, Calif.  
Houts, Joseph C. Dassel  
Hovde, Rolf Winthrop  
Hovland, Melvin L. Minneapolis  
Howard, Marshall I. Mankato  
Howard, Merrill A. St. Paul  
Howard, Robert B. Minneapolis  
Howard, Solomon E. Minneapolis  
Howard, Willard S. St. Paul  
Howe, Newell W. St. Paul  
Howell, Carter W. Minneapolis  
Howell, Llewelyn P. Rochester  
Howell, Milton M. Glencoe  
Hoyer, Ludolf J. Windom  
Hruza, William J. Madelia  
Hubin, Edwin G. Sandstone  
Hudec, Elwyn R. Echo  
Hudson, George E. Minneapolis  
Huebert, Dan W. Hutchinson  
Huenekens, Edgar J. Minneapolis  
Huffington, Herbert L. Lutsen  
Huffington, Herb L., Jr. Waterville  
Hughes, Bernard J. Brainerd  
Hughes, Sidney O. Winona  
Hullsiek, Harold E. St. Paul  
Hullsiek, Richard B. Fort Snelling  
Hult, John E. Cloquet  
Hulteng, Donald B. Minneapolis  
Hultkrans, Rudolph E. Minneapolis  
Humphrey, E. W., Sr. Moorhead  
Humphrey, Wade R. Stillwater  
Hunt, Arthur B. Rochester  
Hunt, Roscoe C. Fairmont  
Hunt, William Fergus Falls  
Hunter, James S., Jr. Rochester  
Hunter, Murray H. Farmington  
Hunter, Samuel W. St. Paul  
Hurd, Anna Minneapolis  
Hurwitz, Milton N. St. Paul  
Husebye, Kjeld O. St. Paul  
Hustad, Edward G. Montevideo  
Hutchinson, Dorothy W. Oak Terrace  
Hutchinson, Henry R. Moose Lake  
Huxley, Frederick R. Faribault  
Hynes, Charles Minneapolis  
Hynes, John E. Minneapolis

Jacobson, Ferdinand C. Duluth  
Jacobson, Loren J. Minneapolis  
Jacobson, Wyman E. St. Louis Park  
James, Ellery M. St. Paul  
James, John W. Mahtomedi  
Janecky, Allen G. Baudette  
Janes, Joseph M. Rochester  
Jansen, Martin E. St. Paul  
Jarvis, Bruce W. St. Paul  
Jarvis, Charles W. St. Paul  
Jarvis, Marilyn A. St. Paul  
Jarvis, Walter H. Rochester  
Jastrom, Rupert M. St. Paul  
Jay, Alan R. Minneapolis  
Jefferies, William L. Minneapolis  
Jensen, Alvin M. Brownston  
Jensen, Harry C. Minneapolis  
Jensen, John A. Crookston  
Jensen, Marius J. Minneapolis  
Jensen, Nathan K. Minneapolis  
Jensen, Reynold A. Minneapolis  
Jensen, Thorvald J. Duluth  
Jenson, James E. Stillwater  
Jerome, Bourne Minneapolis  
Jerome, Elizabeth K. B. Minneapolis  
Jeronimus, Henry J. Duluth  
Jesio, Joseph W. Pine River  
Jessico, Charles M. Duluth  
Jaub, Robert P. Minneapolis  
Joffe, Harold H. Virginia  
Johnson, Waldemar G. St. Paul  
Johnson, Henry A., Jr. Edina  
Johnson, Adelaide MCF. Rochester  
Johnson, Aldridge F. Isle  
Johnson, Angelo G. Minneapolis  
Johnson, Arthur B. Minneapolis  
Johnson, August E. Minneapolis  
Johnson, Carl E. St. Paul  
Johnson, Carl Eric. Rochester  
Johnson, Carolyn A. St. Paul  
Johnson, C. Percv. Tver  
Johnson, Douglas L. St. Paul  
Johnson, Einer W., Sr. Bemidji  
Johnson, Einer W., Jr. Rochester  
Johnson, Emil W. Minneapolis  
Johnson, Frank E. Minneapolis  
Johnson, Harry A. Minneapolis  
Johnson, Herbert W. St. Paul  
Johnson, James A. Minneapolis  
Johnson, John W. Minneapolis  
Johnson, Julius Minneapolis  
Johnson, Karl E. Duluth  
Johnson, Malcolm R. Minneapolis  
Johnson, Marvin W. Dassel  
Johnson, Morris B. St. Paul  
Johnson, Norman P. Minneapolis  
Johnson, Norton T. Minneapolis  
Johnson, Olga H. Moorhead  
Johnson, Orville H. Omaha, Neb.  
Johnson, R. J. St. Paul  
Johnson, Ralph B. Lanesboro  
Johnson, Reinald G. Minneapolis  
Johnson, Reuben A. Minneapolis  
Johnson, Richard S. Minneapolis  
Johnson, Robert E. Minneapolis  
Johnson, Robert H. Chisago City  
Johnson, Roger S. Wayzata  
Johnson, Ronald G. Minneapolis  
Johnson, Vilhelm M. Dawson  
Johnson, William E. Morgan  
Johnson, Youbert T. Minneapolis  
Johnsrud, Luverne W. Hibbing  
Johnston, Henry W. Virginia  
Johnston, Leonard F. Winona  
Johnston, Rufus O. Fort Lauderdale, Fla.  
Johnstone, William W. Ah-gwah-ching  
Jolin, Francis M. Boye  
Jones, Alvah W. Red Wing  
Jones, David G. Minneapolis  
Jones, E. Mendelsohn. St. Paul  
Jones, Herbert W., Jr. Minneapolis  
Jones, Orville H. Mankato  
Jones, Richard H. Minneapolis  
Jones, Richard U., Jr. St. Cloud  
Jones, Robellif U., Jr. Fairfield, Conn.  
Jones, William R. Chicago City  
Jordan, Kathleen Smith. Granite Falls  
Jordan, Lewis S. Granite Falls  
Josevich, Alexander Minneapolis  
Josevski, Raymond J. Stillwater  
Joyce, George L. Rochester  
Judd, Allen S. Minneapolis  
Judd, Edward S., Jr. Rochester  
Judd, Walter H. Washington, D. C.  
Juergens, Herman M. Belle Plaine  
Juergens, John L. Rochester  
Juergens, Manley F. Stillwater  
Juers, Edward O. Red Wing  
Juliar, Richard O. Los Angeles, Calif.  
Juntunen, Roy R. Duluth  
Jurdy, Mitchell J. Minneapolis  
Just, Herman J. Hastings

# ALPHABETIC ROSTER

† Kaasa, Lawrence J. Albert Lea  
Kadesky, Harold B. Minneapolis  
Kaiser, Milton L. New Ulm  
Kalin, Oscar T. Minneapolis  
Kallestad, Leonard L. Wayzata  
Kamman, Gordon R. St. Paul  
Kanne, Earl R. Brainerd  
Kantar, Bruce L. Minneapolis  
Kaplan, David H. St. Paul  
Kaplan, Harold A. Minneapolis  
Kaplan, John J. Minneapolis  
Kargner, L. E. Princeton  
Karges, L. E. Grand Rapids  
Karleen, Bernard N. Jackson  
Karleen, Conrad I. Minneapolis  
Karlen, Markle Minneapolis  
Karn, Jacob F. Ortonville  
Karon, Irvn M. St. Paul  
Kasper, Eugene M. St. Paul  
Kath, Reinhard H. Arlington  
Katz, Louis J. Long Beach, Calif.  
Kaufman, Edward J. Appleton  
Kaufman, Herschel J. Minneapolis  
Kaufman, Walter B. Mankato  
Kaufman, William C. Appleton  
Kearney, Rochfort W. Mankato  
Kearns, Thomas P. Rochester  
Keating, F. Raymond. Rochester  
Keefe, Rolland E. St. Paul  
Keil, Marcus A. Albert Lea  
Keith, Hadow M. Rochester  
† Keith, Norman M. Rochester  
Keith, Paul J. Sleepy Eye  
Keithahn, Elmer E. Sleepy Eye  
Kelby, Gert M. Minneapolis  
Kelley, Walter M. Duluth  
Kelly, Charles F. Minneapolis  
Kelly, James H. St. Paul  
Kelly, John F. Cold Spring  
Kelly, John P. Minneapolis  
† Kelly, John V. St. Paul  
Kelly, Robert T. Nashvauk  
† Kelsey, Carleton G. St. Paul  
Kelsey, Chauncey M. St. Paul  
Kemp, Alphonse F. Mankato  
Kemper, James W. Rochester  
Kenefick, Emmett V. St. Paul  
† Kennedy, Claude C. Minneapolis  
Kennedy, George L. Faribault  
† Kennedy, Jane F. Minneapolis  
Kennedy, Roger L. J. Rochester  
Kenyon, Thomas J. St. Paul  
Kerkhof, Arthur C. Minneapolis  
Kernohan, James W. Rochester  
Kesting, Herman St. Paul  
Kevern, Jay L. Hennig  
Keyes, John D. Winona  
Keyes, Robert W. Pipestone  
Kieley, Joseph M. Rochester  
Kierland, Robert R. Rochester  
Kiesler, Frank, Jr. Minneapolis  
Kilbride, Edwin A. Worthington  
Kilby, Ralph Allen Rochester  
Kimmel, George C. Red Wing  
† King, Edgar A. Minneapolis  
King, Frances W. Oak Terrace  
† King, George L. Hudson, Wis.  
Kinkade, Byron R. Ada  
Kinnipors, Edward B. International Falls  
Kinsella, Thomas J. Minneapolis  
Kiobassa, Edward B. Stillwater  
Kippen, Neil Breckenridge  
Kirby, Thomas J., Jr. Rochester  
† Kirklm, B. R. Rochester  
Kirklm, John W. Rochester  
Kitzberger, Peter J. New Ulm  
† Klass, Donald W. San Antonio, Texas  
Klestad, Lloyd H. Greenbush  
Klein, Harry Duluth  
\* Klein, Henry N. St. Paul  
Klein, William A. Duluth  
Klima, William W. St. Paul  
Knapp, Frank N. Duluth  
Knapp, Miland E. Minneapolis  
Knight, Edwin G. Swanville  
Knight, James Harry Rochester  
Knight, Ralph T. Minneapolis  
† Knight, Ray R. Minneapolis  
Knoche, Harvey A. Morgan  
Knoedler, John P. Duluth  
Knudsen, Helen L. Minneapolis  
Knutson, Gerhard E. St. Paul  
Knutson, Lewis A. Spring Grove  
Knutson, Robert C. St. Paul  
Kodres, Nina St. Paul  
Koelsche, Giles A. Rochester  
Koencke, F. H. Lakefield  
† Koenigs, Robert P. Geneva, N. Y.  
Koenigsberger, Charles Mankato  
Koepecke, Gerald M. Minneapolis  
Kohlbray, Carl O. Duluth  
† Kohler, Delphin W. Tacoma, Wash.  
Kolars, James J. Faribault

Koller, Hermann M. Minneapolis  
Koller, Louis R. Minneapolis  
Koller, Robert L. Minneapolis  
Kooda, Jennings C. Morris  
Koop, Herman E. Cold Spring  
Korchik, John P. Minneapolis  
Korda, Henry A. Pelican Rapids  
Kosiak, John, Jr. Minneapolis  
Koskela, Lauri E. Keewatin  
Kostick, William R. Fertile  
Kotchevar, Frank R. Eveleth  
Kotke, Frederic J. Minneapolis  
Kotval, Russell J. Pipestone  
Koucky, Rudolph W. Minneapolis  
Kovack, Freeman D. Minneapolis  
Kozza, Donald W. St. Paul  
Kozberg, Oscar Moose Lake  
Kraemer, George N. Fairmont  
Kraft, Walter E. Minneapolis  
Krause, C. W. Fairmont  
Kremen, Arnold J. Minneapolis  
Kreuzer, Titus C. Marshall  
Krezowski, Thomas K. Minneapolis  
Krieser, Albert E. Minneapolis  
Kroboth, Frank J., Jr. Rochester  
Krout, Robert M. Rochester  
Krueger, Victor R. Nopeming  
Kruger, Elmer L., Jr. Hibbing  
Krusen, Frank H. Rochester  
Kruzick, S. J. Sleepy Eye  
† Krystosek, Lee A. Madison, Wisc.  
Kucera, Frank J. Hopkins  
† Kucera, Louis B. Colo. Springs, Colo.  
Kucera, Stanley T. Northfield  
Kucera, William J., Sr. Minneapolis  
Kucera, William J., Jr. Minneapolis  
Kugler, Alex A. St. Paul  
Kuhlmann, Lawrence B. Melrose  
Kuhn, Arthur J. Rochester  
Kulstad, Oscar S. Dodge Center  
Kulzer, Norbert J. Hastings  
† Kurtin, Joseph J. New York, N. Y.  
Kuske, Albert W. St. Paul  
† Kuske, Arthur L. New Ulm  
Kuske, Bradley W. St. Paul  
Kuske, Douglas R. St. Paul  
Kusz, Clarence V. Minneapolis  
Kvale, Walter F. Rochester  
Kvitrud, Gilbert St. Paul  
  
LaBree, John W. St. Louis Park  
LaBree, Robert H. Duluth  
LaFond, Edward M. St. Cloud  
Laikola, Leslie A. Adrian  
† Laird, Arthur T. Duluth  
† Laioie, John M. Minneapolis  
Laké, Clifford F. Rochester  
Lamb, H. Douglas Minneapolis  
Lang, Leonard A. Minneapolis  
† Lange, Robert D. Washington, D. C.  
Langhoff, Arthur H. Mankato  
† Langrall, Harrison M. Rochester  
Lannin, Bernard G. St. Paul  
Lannin, Donald R. St. Paul  
Lapierre, Arthur P. Minneapolis  
Lapierre, Jean T. Minneapolis  
Larrabee, Walter F., Jr. St. Paul  
Larsen, Frank Wm. Minneapolis  
Larson, Arnold Detroit Lakes  
Larson, Arthur N. Madison  
Larson, Clarence M. Minneapolis  
Larson, Donald M. Minneapolis  
† Larson, Donald M. St. Paul  
Larson, Dorette W. Madison  
Larson, Eva-Jane St. Paul  
Larson, James T. So. St. Paul  
Larson, Keith D. Moose Lake  
Larson, Kenneth R. St. Paul  
Larson, Lawrence M. Minneapolis  
Larson, Leighton W. Waconia  
Larson, Leonard M. Oak Terrace  
Larson, LeRoy B. St. Paul  
Larson, Martin L. St. Paul  
Larson, Milo H. Lake Benton  
Larson, Oliver E. H. Zumbrota  
Larson, Paul N. Minneapolis  
Larson, Ralph H. Anoka  
Larson, W. G. Northfield  
Laszewski, Franz von Zelberschwecht St. Paul  
Latterell, Kenneth E. Duluth  
† LaVake, Rae T. Minneapolis  
Law, Harrison E. Virginia  
Law, William M. Rochester  
Lax, Morris H. St. Paul  
Laymon, Carl W. Minneapolis  
Lazarte, Jorge A. Rochester  
† Leahy, Bartholomew St. Paul  
Leavenworth, Richard O., Sr. St. Paul  
Leavenworth, Richard O., Jr. St. Louis Park

† Leavitt, H. H. Minneapolis  
† Lebowaks, Joseph A. Minneapolis  
Leck, Paul C. Austin  
Ledd, Eugene T. Rochester  
Lee, Gordon E. Glenwood  
Lee, Henry M. Cambridge  
Lee, Hubert W. Brainerd  
Lee, Norman J. Tracy  
† Lee, Walter N. Claremont, Calif.  
Leek, Joseph H. Duluth  
Leenhuis, Andrew J. Minneapolis  
Leibold, Herbert H. Parkers Prairie  
Leick, Richard M. St. Paul  
Leiferman, Robert J. Minneapolis  
Leiteh, Archibald St. Paul  
Leland, Harold R. Minneapolis  
Lenander, Melvin E. St. Peter  
Lenarz, Albert J. Brownville  
Lende, Norman Faribault  
Lenz, Joseph R. Morton  
Lenz, Otto A. Minneapolis  
Leonard, Lawrence J. Minneapolis  
Leonard, Samuel Minneapolis  
† Leopard, Brand A. Brownsville, Texas  
Lepak, Francis J. Duluth  
Lepak, John A. St. Paul  
Leppo, N. Erkki A. Duluth  
† Lerche, William Cable, Wis.  
Lerner, A. Ross. Minneapolis  
† Lescoe, Richard J. Ellington AFB, Texas  
Lester, Malcolm J. Truman  
† Letson, Robert D. Glenwood  
Leven, N. Logan St. Paul  
Leverenz, Carleton W. St. Paul  
† Levin, Bert G. St. Paul  
Levitt, George X. St. Paul  
Lewis, Arthur J. Hennig  
Lewis, Charles W. Hennig  
† Lewis, Claude B. St. Cloud  
Lewis, F. John Minneapolis  
Lewis, Joyce S., Jr. Minneapolis  
† Lexa, Frank J. Lonsdale  
Libert, John N. St. Cloud  
Lick, Charles L. St. Paul  
Lick, Louis C. St. Paul  
Lick, William J., Jr. St. Paul  
† Liedloff, Adolph G. Mankato  
Lien, Richard J. St. Paul  
Lienke, Roger I. Minneapolis  
Liffright, William W. Red Wing  
† Lightbourn, Edgar L. Hastings  
Lilleberg, Norbert J. St. Paul  
Lillehei, C. Walton Minneapolis  
Lillehei, Elmer J. Robbinsdale  
† Lillie, Harold I. Rochester  
Lillie, John G. Rochester  
Lima, Ludwig R. Montevideo  
Limbeck, Donald A. Le Sueur  
† Lind, Carl J., Jr. Washington, D. C.  
Lindahl, Merlyn J. Sherburn  
Lindberg, Alfred L. Wheaton  
Lindberg, Arthur N. Minneapolis  
† Lindberg, Arvid C. Minneapolis  
Lindberg, Vernon L. Minneapolis  
Lindberg, Winston R. Minneapolis  
Lindblom, Alton E. North Mankato  
Lindblom, Maurice L. Minneapolis  
† Linde, Herman Cyrus  
Lindell, Robert St. Paul  
Lindeman, Raymond J. Paynesville  
Lindemann, Charles E. Minneapolis  
Lindgren, Russell C. Minneapolis  
Lindner, Janus C. Minneapolis  
Lindquist, Richard H. Minneapolis  
Linner, Gunnar Minneapolis  
† Linner, Henry P. Minneapolis  
Linner, John H. Minneapolis  
Linner, Paul W. Minneapolis  
Lippman, Hyman S. St. Paul  
Lippman, Elmer W. Hutchinson  
Lippman, Emanuel S. Minneapolis  
Lipschultz, Oscar Minneapolis  
Lipscomb, Paul R. Rochester  
† Litchfield, John T. Minneapolis  
Litin, Edward M. Rochester  
Litman, Abraham B. Minneapolis  
Litman, Samuel N. Duluth  
Litzow, Thaddeus Rochester  
Lober, Paul H. Minneapolis  
Loes, Louis A. St. Cloud  
Loifgren, Karl A. Rochester  
Loifness, Stanley V. St. Paul  
Loifstrom, Dennis E. Pine River  
† Logan, Archibald H. Rochester  
Logan, George B. Rochester  
† Logefield, Rudolph C. Minneapolis  
Lohmann, John G. Pipestone  
Loken, Selmer M. St. Paul  
Loken, Theodore Ada  
Lommen, Peter A. Austin  
Longfellow, Helen W. Brainerd  
† Loomis, Earl A. Minneapolis

# ALPHABETIC ROSTER

Loomis, George L. Winona  
 Lorenz, Ernest S. Detroit Lakes  
 Lorton, William L. Rochester  
 Lott, Frederick H. Minneapolis  
 Lousell, Charles T. Fairmont  
 Love, Frederick A. Carlos  
 Love, J. Grafton. Rochester  
 Lovett, Beatrice R. Oak Terrace  
 Lowe, Earl R. So. St. Paul  
 Lowe, Thomas A. So. St. Paul  
 Lowry, Elizabeth C. Minneapolis  
 Lowry, Paul. Minneapolis  
 Lowry, Thomas. Minneapolis  
 Luck, Hilda. Mankato  
 Luckemeyer, Carl J. St. Cloud  
 Luck, Wallace W. Minneapolis  
 Lufkin, Nathaniel H. Minneapolis  
 Lukk, Olaf. Montgomery  
 Lund, Carl J. T. Fergus Falls  
 Lund, George W. Minneapolis  
 Lund, Werner J. Staples  
 Lundberg, Ruth I. Minneapolis  
 Lundblad, Robert M. Minneapolis  
 Lundblad, Roy A. Minneapolis  
 Lundblad, Stanley W. Minneapolis  
 Lundberg, Karl R. Minneapolis  
 Lundell, Carl L. Granite Falls  
 Lundholm, Arthur M. St. Paul  
 Lundquist, Curt W. Owatonna  
 Lundquist, Virgil J. P. Minneapolis  
 Lundsten, Leslie C. Bemidji  
 Lundsten, Lloyd R. Rochester  
 Lundy, John S. Rochester  
 Lynch, Francis W. St. Paul  
 Lynch, Matthew J. Minneapolis  
 Lynn, Thomas E. Rochester  
 Lyons, James H. Minneapolis  
 Lyons, Michael W. Minneapolis  
 Lyne, Henry. Minneapolis  
 Lyne, Myron. Minneapolis  
 Lysy, Anatol. Minneapolis  
 Lysenga, Anton G. Minneapolis  
 McBean, J. B. Rochester  
 McCabe, James S. St. Paul  
 McCaffrey, F. John. Minneapolis  
 McCain, Donovan L. St. Paul  
 McCann, Eugene L. Minneapolis  
 McCannel, Malcolm A. Minneapolis  
 McCarten, Francis M. Stillwater  
 McCarthy, Austin M. Wilmar  
 McCarthy, Donald. St. Paul  
 McCarthy, Joseph J. St. Paul  
 McCartney, James S. Minneapolis  
 McCarty, Paul D. Ely  
 McClanahan, James H. White Bear Lake  
 McClanahan, T. S. White Bear Lake  
 McClellan, Robert J. St. Paul  
 McClelland, Charles N. Jr. St. Paul  
 McClelland, William M. Jr. Rochester  
 McCormick, Donald P. Minneapolis  
 McCoy, Mary K. Duluth  
 McDaniell, Oriana. Minneapolis  
 McDonald, Archibald L. Duluth  
 McDonald, John R. Rochester  
 McDonald, Owen G. Duluth  
 McDonald, William J. Crookston  
 McDowell, John P. St. Cloud  
 McEaney, Clifford T. Owatonna  
 McEwan, Alexander. St. Paul  
 McFarland, Arthur H. Minneapolis  
 McGandy, Robert F. Minneapolis  
 McGee, George E. Minneapolis  
 McGroarty, Brian J. St. Paul  
 McGroarty, John J. Easton  
 McHaffie, Orval L. Duluth  
 McHardy, Bryson R. Chicago, Ill.  
 McIlhenny, Mary Lou. Wheeler, Texas  
 McInerney, Maurice W. Minneapolis  
 McIntire, Homer M. Waseca  
 McIntire, John A. Owatonna  
 McKaig, Alan B. Red Lake Falls  
 McKaig, John W. Pine Island  
 McKav, John W. Rochester  
 McKav, Walter E. Altadina, Calif.  
 McKelvey, John L. Minneapolis  
 McKenna, Elizabeth M. Austin  
 McKenna, Jay K. Austin  
 McKenna, John J. Virginia  
 McKenna, Maurice J. Grand Rapids  
 McKenzie, Charles H. Minneapolis  
 McKenzie, Eva Elaine. St. Paul  
 McKinlay, Chauncey A. Minneapolis  
 McKinney, Frank S. Minneapolis  
 McLane, William O. Brainerd  
 McLaughlin, Byron H. Minneapolis  
 McLaughlin, Edmund M. Winona  
 McLeod, John J. Jr. Rochester  
 McManus, William F. Princeton  
 McMurtrie, William B. Minneapolis  
 McNear, George R., Jr. Mankato  
 McNeil, John J. Minneapolis

McNeill, J. A. St. Paul  
 McNutt, John R. Duluth  
 McPheters, Herman O. Minneapolis  
 McQuarrie, Irvin. Minneapolis  
 McSweeney, Austin J. Danville, Ill.  
 MacCarty, Collin S. Rochester  
 MacCarty, William C. Rochester  
 MacDonald, Daniel A. Minneapolis  
 MacDonald, John W. Minneapolis  
 MacDonald, Roger A. Littlefork  
 MacKinnon, Donald C. Minneapolis  
 MacLean, Alexander R. Rochester  
 MacRae, Gordon C. Duluth  
 Mach, Frank B. Minneapolis  
 Macklin, William E., Jr. Pine City  
 Mackoff, Sam M. Phoenix, Ariz.  
 Madalin, Herbert E. Rochester  
 Madland, Robert S. St. Paul  
 Maeder, Edward C. Minneapolis  
 Magath, Thomas B. Rochester  
 Magness, John L. Rochester  
 Magney, Fredolph H. Duluth  
 Magnuson, Allen E. Wheaton  
 Magnuson, Raymond C. Cambridge  
 Magraw, Richard M. Minneapolis  
 Mahle, Donald G. Plainview  
 Mahowald, Aloys. Fergus Falls  
 Maitland, Edwin T. Jackson  
 Maland, Clarence O. Minneapolis  
 Malerich, J. Anthony. St. Paul  
 Malerich, J. Anthony, Jr. St. Paul  
 Malmstrom, John A. Virginia  
 Mandel, Sheldon L. Minneapolis  
 Manger, William M. Rochester  
 Mankey, James C. Minneapolis  
 Mankin, Harold T. Rochester  
 Mann, George A. Minneapolis  
 Manson, Frank M. Minneapolis  
 Marley, Walter J. Worthington  
 Marking, George H. Minneapolis  
 Marks, Roger W. St. Paul  
 Marrone, Patrick H. Duluth  
 Martin, Albert C. Luverne  
 Martin, Dwight L. St. Paul  
 Martin, Frank E. Minneapolis  
 Martin, George B. Thief River Falls  
 Martin, George R. Rochester  
 Martin, Gordon M. Rochester  
 Martin, Thomas Philip. Arlington  
 Martin, Webster C. Duluth  
 Martin, William B. Duluth  
 Martin, William J. Rochester  
 Martineau, Joseph L. St. Paul  
 Martinson, Carl J. Wayzata  
 Martinson, Elmer J. Wayzata  
 Masson, Duncan M. Rochester  
 Masson, James C. Rochester  
 Masson, James K. Rochester  
 Mast, Frederic L. Chisholm  
 Mateo, Guillermo. St. Paul  
 Mathieson, Don R. Rochester  
 Matthews, James H. Minneapolis  
 Matthews, Louis B., Jr. Rochester  
 Mattill, Peter M. Oak Terrace  
 Mattison, Percy A. Winona  
 Mattson, Albert D. St. James  
 Mattson, Hamlin A. N. Minneapolis  
 Maunders, John B. Minneapolis  
 Maus, Philip. New Orleans, La.  
 Maxeiner, Stanley R., Sr. Minneapolis  
 Maxeiner, Stanley R., Jr. Minneapolis  
 Mayne, John Gregory. Rochester  
 Mayne, Roy M. Nopeming  
 Mayo, Charles W. Rochester  
 Mazzitello, William F. St. Paul  
 Mead, Charles H. Duluth  
 Meade, John R. St. Paul  
 Mears, Burtis J. St. Paul  
 Mears, Robert F. Northfield  
 Medelman, John P. St. Paul  
 Meinert, Albert E. Winona  
 Meinert, John K. Willmar  
 Melancon, Joseph F. St. Paul  
 Melby, Benedict. Blooming Prairie  
 Meller, Maurice. Brainerd  
 Meller, Robert L. Minneapolis  
 Melzer, George R. Lyle  
 Menefee, Edward C. Albert Lea  
 Menold, William F. St. Paul  
 Mensheha, Nicholas. Forest Lake  
 Mercil, William F. Crookston  
 Merkert, Charles E. Minneapolis  
 Merkert, George L. Minneapolis  
 Merrick, Thomas B. Faribault  
 Merrick, Charlotte T. St. Paul  
 Merrick, Robert L. St. Paul  
 Merrill, Robert W. Morris  
 Merriman, Lloyd L. Duluth  
 Merritt, Wallace A. Rochester  
 Messer, George H. Olivia  
 Messer, James W. Rochester  
 Metcalf, Norman B. Princeton

Metz, Donald D. Buffalo Lake  
 Meyer, Alvin J. Minneapolis  
 Meyer, Anthony A. Melrose  
 Meyer, Ete L. Minneapolis  
 Meyer, Frederick C. Kenyon  
 Meyer, Paul F. Faribault  
 Meyer, Robert J. Minneapolis  
 Meyer, Robert P. Faribault  
 Meyerding, Edward A. St. Paul  
 Meyerding, Henry Wm. Rochester  
 Michael, Joseph C. Minneapolis  
 Michel, Henry H. Minneapolis  
 Michels, Roger P. Willmar  
 Michelson, Henry E. Minneapolis  
 Michienzi, Leonard J. St. Paul  
 Mickelsen, Emma F. Minneapolis  
 Mickelson, John C. Durham, N. C.  
 Midboe, Gilbert T. St. Paul  
 Midthune, A. S. Lake Park  
 Miettunen, John B. Chisholm  
 Milhaupt, E. N. St. Cloud  
 Miller, Albert G. St. Paul  
 Miller, Arden L. Minneapolis  
 Miller, Harold E. Minneapolis  
 Miller, Herman. Reading  
 Miller, Hugo E. Minneapolis  
 Miller, James R. Scott. Rochester  
 Miller, John C. Minneapolis  
 Miller, Roland D. Rochester  
 Miller, Ross H. Rochester  
 Miller, Victor I. Mankato  
 Miller, William Anthony. New York Mills  
 Miller, William P. Montevideo  
 Miller, William T. Minneapolis  
 Miller, Winston R. St. Paul  
 Miller, Z. K. Minneapolis  
 Millett, D. K. Rochester  
 Millikan, Clark H. Rochester  
 Mills, John L. Winnebago  
 Mills, Stephen D. Rochester  
 Milnar, Frank J. St. Paul  
 Milton, John S. Minneapolis  
 Minge, Raymond K. Worthington  
 Minsky, Armen A. Minneapolis  
 Mintz, Charles M. St. Paul  
 Misbach, William D. Sherman Oaks, Calif.  
 Mishek, Charles J. St. Paul  
 Mithy, Irving L. Minneapolis  
 Mitchell, Bert D. Minneapolis  
 Mitchell, Edwards C. Minneapolis  
 Mitchell, Mancel T. Minneapolis  
 Mixer, Harry W. Minneapolis  
 Moberg, Clarence W. Detroit Lakes  
 Moberg, Thomas D. Tacoma, Wash.  
 Moe, John H. Minneapolis  
 Moe, Thomas. Moose Lake  
 Moehn, John T. Minneapolis  
 Moehring, Henry G. Duluth  
 Moen, Johannes K. Minneapolis  
 Moersch, Frederick P. Rochester  
 Moersch, Herman J. Rochester  
 Moertel, Charles G. Rochester  
 Moga, John A. St. Paul  
 Molander, Herbert A. St. Paul  
 Molenaar, Robert E. Cannon Falls  
 Mollers, Theodore P. Soudan  
 Monahan, Elizabeth S. Minneapolis  
 Monahan, Robert H. St. Paul  
 Monroe, Paul B. Cloquet  
 Monsrud, Nels O. Cloquet  
 Monson, Einar M. Minneapolis  
 Monson, Leonard J. Canby  
 Montgomery, Hamilton. Rochester  
 Mooney, Robert P. St. Paul  
 Moore, Irvin H. Minneapolis  
 Moorhead, Marie. Minneapolis  
 Moos, Daniel J. Minneapolis  
 Moquin, Marie A. St. Paul  
 Morehead, Dewey E. Owatonna  
 Moren, J. Adelaide. White Bear Lake  
 Morgan, Edward R. Rochester  
 Morgan, Hugh O. Amboy  
 Moriarty, Berenice. St. Paul  
 Moriarty, Cecile R. St. Paul  
 Mork, A. Harold. Anoka  
 Mork, Frank E. Anoka  
 Morlock, Carl G. Rochester  
 Morrison, Charlotte J. Minneapolis  
 Morrow, George W., Jr. Rochester  
 Morse, Morton P. LeRoy  
 Morsman, L. William. Hibbing  
 Mortensen, Nels G. Minneapolis  
 Mortenson, Howard O. Long Prairie  
 Mosby, Maurice E. Kenyon  
 Moses, Royal R. Minneapolis  
 Mosser, Donn G. St. James  
 Moulton, K. B. Fergus Falls  
 Mouritsen, Glenn J. Duluth  
 Moyer, John B. Minneapolis  
 Moyer, Leonard H. Rochester  
 Mudd, Robert B. Bagley  
 Mueller, Donald R. Richmond  
 Mueller, Rudolph B. Richmond



# ALPHABETIC ROSTER

Muesing, William J.	New Ulm	Norman, David D.	St. Paul	Parker, Harry L.	Rochester
Muir, Walter F.	Browns Valley	Normann, Stephen T., Jr.	Waseca	Parker, Philip J.	Hallcock
Mulder, Donald W.	Rochester	Norris, Neil T.	Caledonia	Parker, Robert L.	Rochester
Mulholland, William M.	Minneapolis	*† Noth, Henry W.	Minneapolis	Parker, Warren E.	Sebeke
Muller, A. Eugene	No. St. Paul	† Novak, Edward E.	New Prague	Parkhill, Edith M.	Rochester
Mulligan, Arthur M.	Brainerd	Nuebel, Charles J.	St. Paul	Parson, E. Irvine	Rochester
Mundahl, Harold R.	St. Paul	Nuessle, Walter G.	Springfield	Parson, E. Lillian B.	Elbow Lake
Munson, Martin S.	Barnum	Nuessle, William F.	Minneapolis	Parson, Lester R.	Elbow Lake
Murphy, Edmund P.	Minneapolis	Nuetzman, Arthur W.	Faribault	Parsons, R. A.	St. James
Murphy, Jack T.	St. Paul	Nutting, Roland E.	Duluth	Parsons, Ralph L.	Monterey
Murphy, Joseph E.	Marshall	Nydahl, Malvin J.	Minneapolis	Parsons, William B., Jr.	Rochester
Murray, Robert A.	Hibbing	Nye, Katherine A.	St. Paul	Pasek, Antone W.	Cloquet
Musachio, Nicholas F.	Foley	Nye, Lillian L.	St. Paul	† Pasek, Edward A.	Minneapolis
Muske, Marvin M.	Minneapolis	Nygren, William T.	Braham	Patch, Orien B.	Duluth
Mussey, Mary E.	Rochester	Nylander, Emil G.	Minneapolis	Patrick, Robert T.	Rochester
† Mussey, Robert D.	Rochester	Nywall, Dean D.	Slayton	Pattie, James J.	Minneapolis
Musty, Nicholas J.	Minneapolis			Patterson, Hugh D.	Slayton
Myers, Jay A.	Minneapolis	O'Brien, J. C.	St. Paul	† Patterson, William L.	Fergus Falls
Myers, John W.	Canby	O'Brien, Louis T.	Breckenridge	Paulson, Elmer C.	Minneapolis
† Myers, Richard L.	Selfridge AFB, Mich.	† O'Connor, Daniel C.	Eden Valley	Paulson, John A.	Rochester
Myers, Thomas T.	Rochester	† O'Connor, Loren J.	St. Paul	Paulson, Theodore S.	Fergus Falls
Myhre, James A.	Minneapolis	O'Donnell, James E.	Minneapolis	Paulson, Wallace J.	Minneapolis
Myre, Clifford R.	Paynesville	O'Hanlon, John A.	Minneapolis	Pearce, Francis M., Jr.	Rochester
Myre, Theodore T.	Rochester	O'Kane, Thomas W.	St. Paul	† Pearsall, R. P.	Virginia
		O'Keefe, James P.	St. Cloud	Pearson, Bror F.	Shakopee
† Naegeli, Frank.	Fergus Falls	O'Keefe, Mathew E., Jr.	Rochester	Pearson, Fritz R.	St. Paul
Nagel, Harold D.	Minneapolis	† O'Leary, John B.	Brainerd	Pearson, Malcolm M.	St. Paul
Nakamura, James Y.	Deer River	* O'Malley, Valentine	Rochester	Pease, Gertrude L.	Rochester
Nash, Eldore B.	Eden Valley	O'Neill, John C.	Duluth	† Peck, Owen G.	Rochester
Nash, Leo	St. Paul	O'Phelan, E. Harvey	Minneapolis	† Pedersen, Arthur H.	St. Paul
Naslund, Ames W.	Minneapolis	O'Reilly, Bernard E.	St. Paul	Pedersen, Roy L.	Brainerd
Neal, Joe M.	St. Paul	† O'Shaughnessy, Edward J.	Camp Kilmer, N. J.	Pedersen, Robert C.	Duluth
Nealy, Donald E.	Adrian			Peltier, Leonard F.	Minneapolis
Neary, Richard P.	Minneapolis	† Oberg, Carl M.	Minneapolis	Peluso, Charles R.	Minneapolis
Neel, Harry B.	Albert Lea	Oehsner, Clarence G.	Wabasha	Pemberton, Albert H.	Rochester
Neff, Walter S.	Virginia	Ockuly, Orville	St. Paul	† Pemberton, John	Rochester
Nehring, Jesse P.	Preston	Odel, Howard M.	Rochester	Penhall, Fletcher W.	Morton
Neibergs, Lidija	St. Paul	Odland, Donald M.	Luverne	Penk, Engward L.	Springfield
Neibergs, Pauls	St. Paul	Odland, Mark E.	Detroit Lakes	Penin, George E.	Mankato
Neils, Vernon E.	Sauk Rapids	Odland, Olin M.	Granite Falls	† Pennie, Daniel F. V.	Duluth
Nelson, Bernette G.	Minneapolis	Oeljen, Siegfried C. G.	Waseca	† Peppard, Thomas A.	Minneapolis
Nelson, Bernice A.	Minneapolis	Ogden, Warner	St. Paul	† Perkins, Douglass E.	Alexandria
Nelson, Carleton A.	Minneapolis	Ohage, Justus	St. Paul	† Perlman, Everett C.	Minneapolis
Nelson, C. Barton	Minneapolis	Olavs, Olga	Minneapolis	Perlman, Herschel L.	Minneapolis
Nelson, Clayton E.	Albert Lea	Olds, George H.	New Richland	Perry, Harold	Rochester
Nelson, Edward N.	Minneapolis	Olfelt, Paul C.	Minneapolis	Persson, John P.	Albert Lea
Nelson, Ernest J.	Lonsdale	Oliver, John T.	Mankato	† Feril, Albert L.	Canby
Nelson, Glenn E.	Fairfax	Oliver, Irwin L.	Graceville	Peteler, Jennings C. L.	Minneapolis
Nelson, Harvey	Minneapolis	Olmann, Edmund G.	St. Peter	† Peterman, Albert F.	Rochester
Nelson, Henry E.	Crookston	Olsen, Arthur M.	Rochester	Peters, Gustavus A.	Rochester
† Nelson, Kenneth	Warroad	Olsen, E. George	Minneapolis	Petersen, D. H.	Northfield
Nelson, Lloyd S.	Minneapolis	Olsen, Ralph L.	St. Paul	Petersen, Deane A.	Minneapolis
Nelson, Loren E.	St. Paul	Olsen, Albert E.	Duluth	Petersen, Glenn L.	Minneapolis
† Nelson, Louis A.	St. Paul	Olsen, Albert J.	Owatonna	Petersen, Magnus C.	Rochester
Nelson, Louis A., Jr.	St. Paul	Olsen, Alton C.	Minneapolis	Petersen, Peter C.	Minneapolis
Nelson, Luther A.	Rush City	Olsen, Archie O.	Duluth	Petersen, Robert T.	St. Cloud
Nelson, Maxine O.	Minneapolis	Olsen, Carl J.	Minneapolis	Petersen, William E.	Minneapolis
Nelson, Maynard C.	Minneapolis	Olsoh, C. Kent.	Minneapolis	† Peterson, Alice H.	Minneapolis
Nelson, Melvin S.	Granite Falls	Olson, Charles A.	St. Paul	Peterson, Alvin C.	Mora
† Nelson, Nesmith P.	Minneapolis	Olson, Chester J.	St. Paul	Peterson, David B.	St. Paul
Nelson, O. L. Norman	Minneapolis	Olson, Duane O. C.	Gaylord	Peterson, Donald H.	St. Paul
Nelson, Robert H.	Benson	Olson, Ernest A.	Pine Island	Peterson, Edward N.	Virginia
• Nelson, Robert L.	Duluth	Olson, Grant E.	West Concord	Peterson, Harold O.	St. Paul
Nelson, Roy A.	Fergus Falls	Olson, Gregory M.	Litchfield	Peterson, Henry	Minneapolis
Neson, Wallace I.	Minneapolis	Olson, Lillian A.	Ah-gwah-ching	Peterson, Herbert W.	Minneapolis
Nelson, Wilburn O. B.	Fergus Falls	† Olson, Olof A.	Minneapolis	Peterson, Joel L. E.	St. Paul
Nelson, William C.	Rochester	Olson, Philip A.	Minneapolis	Peterson, John H.	Duluth
Nerenberg, Samuel T.	Minneapolis	Olson, Roland A.	Wayzata	Peterson, Kenneth A.	Rochester
Nesbitt, Samuel	Minneapolis	† Onifer, Theodore Michael	Rochester	† Peterson, Nordahl P.	Minneapolis
Nesheim, Martin O.	Emmons	Onsgard, L. Kenneth	Houston	Peterson, Oliver H., Sr.	Minneapolis
Nessa, Curtis B.	St. Cloud	Oppegard, C. L.	Crookston	Peterson, Palmer A.	Minneapolis
Nesse, J. A.	W. Austin	Oppen, E. Gerhard	Minneapolis	† Peterson, Peter E.	Minneapolis
Nesset, Lawren B.	Minneapolis	Oppen, Melvin G.	Wayzata	Peterson, Roy A.	Vesta
Nesset, William D.	Minneapolis	Opsahl, Lawrence J.	Willmar	Peterson, Roy L.	White Bear Lake
Neumaier, Arthur	Glencoe	Opstad, Earl T.	Minneapolis	Peterson, Stanley C.	Austin
Neumann, Conrad A.	Lewiston	Orr, Burton A.	Faribault	Peterson, W. H.	Austin
Neumeister, Charles A.	Minneapolis	† Orwoll, Harold S.	Japan	Peterson, Willard C.	Minneapolis
Newnum, Raymond L.	Rochester	Osborn, Donald O.	Austin	Peterson, Willard E.	Willmar
Nice, Charles M.	Minneapolis	Osborn, John E.	Rochester	Petit, Julien V.	Minneapolis
Nichols, Donald R.	Rochester	Ostergren, Erling	Evansville	Pettersen, George R.	Mabel
Nicholson, Richard W.	Heron Lake	Ostergren, Edward W.	St. Paul	† Pettet, John R.	Fort Ord, Calif.
Nickerson, John R.	Fairmont	Ouellette, Alfred J.	St. Paul	Pewters, John T.	Minneapolis
Nickerson, Neil D.	Fairmont	Ourada, Anthony L.	Fairmont	Peyton, William T.	Minneapolis
Nielsen, Alvin M.	Northfield	Owen, Charles A., Jr.	Rochester	† Phalen, Patrick T.	Rochester
Nietfeld, Aloys B.	Sauk Centre	Owens, Ben P.	Hibbing	Phares, Otto C.	St. Cloud
Nilson, Helmer J.	North Mankato	Owens, Frederick M., Jr.	St. Paul	Phelps, Kenneth A.	Minneapolis
Nimlos, Kenneth O.	St. Paul	Owens, William A.	Montevideo	Phillips, Donald F.	Rochester
† Nimlos, Lenore O.	St. Paul	Ozolins, Marta	Faribault	Philp, David R.	Watertown
Ninneman, Newton N.	Waconia			Pierce, Charles H.	Wadena
Nistius, George	Duluth			Pierce, Jack R.	Virginia
Noble, John F.	St. Paul			Pierce, Robert B.	Olivia
Noble, J. Lawrence	St. Paul			Pierse, Roy F.	Slayton
Nollet, Donald J.	Hibbing	Paal, Dwain J.	Minneapolis	† Piper, Monte C.	LaCanada, Calif.
Noran, Axel S. N.	Minneapolis	† Paciotti, Vincent J.	St. Charles	Piper, William A.	Mountain Lake
Noran, Harold H.	Minneapolis	Page, Raymond L.	St. Paul	Pittelkow, Robert B.	Rochester
Norbert, Carl E.	Cloquet	Palen, Benjamin J.	Minneapolis	Plasha, Matthew K.	Anoka
Nord, J. Erling	Hallcock	Palmer, Clinton F.	Albert Lea	† Plask, Herbert F. R.	Minneapolis
Nord, Robert E.	Edina	Pankratz, Peter J.	Mountain Lake	Platon, Erling	Minneapolis
Nordin, Gustaf T.	Minneapolis	Papermaster, Ralph	Two Harbors	† Pleissner, Karl W.	Minneapolis
Nordland, Martin, Sr.	Minneapolis	Papermaster, Theodore C.	Minneapolis	Plimpton, Nathan C., Jr.	Minneapolis
Nordland, Martin, Jr.	Rochester	† Paris, Jaime	Rochester	† Plondke, Fred J.	White Bear Lake
Nordman, Willard F.	Mora	† Park, Wilford E.	Minneapolis		
		Parker, Charles W.	Wadena		



# ALPHABETIC ROSTER

Rochester  
Hallowell  
Rochester  
Sebek  
Rochester  
Polley, Howard F.  
Pollock, Anthony J.  
Pollock, David K.  
Polzak, Paul G.  
Pone, John  
Ponterio, James E.  
Pool, Thomas L.  
Poppe, Frederick H.  
Porter, Oliver M.  
Post, Edmund A.  
Potek, David  
Potter, Robert B.  
Powelson, Myron H.  
Power, John E.  
Power, John E., Jr.  
Pratt, Fred J., Sr.  
Pratt, Fred J., Jr.  
Pratt, George F.  
Pratt, Joseph H., Jr.  
Preine, Irving A.  
Preisinger, Joseph W.  
Prem, Ronald A.  
Preston, Paul J.  
Price, Mary Pougiales  
Price, William E.  
Prickman, Louis E.  
Priest, Robert E.  
Priestley, James T.  
Prim, Joseph A.  
Prins, Leo R.  
Proeschel, Ray K.  
Proffitt, William E.  
Proshak, Charles E.  
Pruitt, Raymond D.  
Pugh, David G.  
Pumala, Erven C.  
Purnell, Don C.  
Purves, G. Harland  
Pumala, Reino H.  
Quantstrom, Virgil E.  
Quattlebaum, Frank W.  
Quello, Robert O. B.  
Quigley, Arthur E.  
Quist, Henry W., Sr.  
Quist, Henry W., Jr.  
Raadquist, Charles S.  
Raattama, John W.  
Raetz, Sylvester J.  
Raisle, Richard B.  
Rajala, Arnold I.  
Ralph, James R.  
Ralston, Donald E.  
Ramlow, Ralph M.  
Ramsey, Walter R.  
Randall, Lawrence M.  
Randall, Raymond V.  
Ransom, H. Robert  
Ransom, Matthias L.  
Rasmussen, Ramby C.  
Rasmussen, Waldemar C.  
Ratelle, Alexander E.  
Ravits, Harold G.  
Rayner, Ralph R.  
Rea, Charles E.  
Reader, Donald R.  
Redding, Foster K.  
Reed, Paul  
Reed, William B.  
Reff, Alan R.  
Regner, Edward A.  
Reid, James W.  
Reif, Harold A.  
Reif, Henry J.  
Reif, Robert W.  
Reisnyder, William Henry, III.  
Reiley, Richard E.  
Reineke, George F.  
Reinhardt, James H.  
Reitemeier, Richard J.  
ReMine, William H., Jr.  
Remole, William D.  
Remsen, R. R.  
Reno, George L.  
Replogle, William H.  
Resch, Joseph A.  
Rice, Carl O.  
Rice, Frank B.  
Rice, Fred A.  
Rice, Hagbart G.  
Rice, Roberta G.  
Richards, Albert M.  
Richards, Ernest T. F.

St. Paul  
Worthington  
Watertown  
Minneapolis  
Forest Lake  
Rochester  
Minneapolis  
Minneapolis  
St. Paul  
Minneapolis  
Cambridge  
Shakopee  
Rochester  
Minneapolis  
Atwater  
St. Paul  
Cambridge  
Minneapolis  
San Francisco, Cal.  
Duluth  
Duluth  
Minneapolis  
Minneapolis  
Rochester  
Rochester  
Osseo  
Dallas, Texas  
Minneapolis  
Minneapolis  
Rochester  
Minneapolis  
Rochester  
Minneapolis  
Austin  
Faribault  
Worthington  
Minneapolis  
Rochester  
Anoka  
Minneapolis  
Minneapolis  
Fergus Falls  
Minneapolis  
Minneapolis  
Elk River  
Winona  
Winona  
St. Paul  
Spring Grove  
McIntosh  
Worthington  
Virginia  
St. Paul  
St. Charles  
Rochester  
Mound  
Rochester  
Appleton  
Minneapolis  
Lakfield  
Minneapolis  
Minneapolis  
Minneapolis  
Austin  
St. Paul  
Anoka  
Minneapolis  
Morris  
Minneapolis  
Mankato  
St. Paul  
Minneapolis  
St. Paul  
St. Paul  
Montevideo  
Rochester  
Fairmont  
St. Paul  
Duluth  
Coleraine  
St. Paul  
Willmar  
Rochester  
Minneapolis  
Minneapolis  
Minneapolis  
Duluth  
Duluth  
Sandstone  
Forest Lake  
Tarzons, Calif.  
Faribault  
Duluth  
Westbrook  
Rochester  
Blue Earth  
Minneapolis  
St. Paul  
Detroit Lakes  
Detroit Lakes

Ryan, John J.  
Ryan, Joseph M.  
Ryan, Robert F.  
Ryan, William J.  
Rydburg, Wayne C.  
Rydland, Vincent  
Rydland, Arne D.  
Rygh, Harold N.  
Rynda, Edwin R.  
Rynearson, Edward H.  
Rysgaard, George M.  
St. Cyr, Harry M., Jr.  
St. Cyr, Kenneth J.  
Sabin, Frederick Chapman  
Sach-Kowitz, Alvan  
Sadler, William P., Jr.  
Saffert, Cornelius A.  
Safirescu, Sorin R.  
Sahr, Walter G.  
Salassa, Robert M.  
Saliterman, Bernard I.  
Salk, Richard J.  
Salter, Reginald A.  
Samuelson, Samuel  
Sandeen, Robert M.  
Sanderson, David J.  
Sandt, Karl E.  
Sandven, Nels O.  
Sanford, Arthur H.  
Sanford, John B.  
Sanford, Raymond A.  
Sarf, Oliver E.  
Sargent, Edward C.  
Sarnecki, M. M.  
Satersmoen, Theodore  
Sather, Edgar L.  
Sather, Edgar R.  
Sather, George A.  
Sather, Richard N.  
Sather, Russell O.  
Satterlee, Howard W.  
Satterlund, Victor L.  
Sauer, William G.  
Savage, Francis J.  
Sawaryniuk, Iwan  
Sawatzky, William A.  
Sawell, Robert R.  
Sax, Milton H.  
Sax, Simon G.  
Saxman, Gertrude O.  
Sayre, George P.  
Sborov, Abe M.  
Scanlon, Paul W.  
Schaa, Frederick H. K.  
Schaar, Frances E.  
Schade, Frederick L.  
Schaefer, Joseph C.  
Schaefer, Joseph F.  
Schaefer, Kenneth F.  
Schaefer, Wesley G.  
Schaffhausen, Mildred  
Schamber, Walter F.  
Schatz, Francis J.  
Scheidt, Alois McK.  
Scheifley, Charles H.  
Scheldrup, N. H.  
Scherer, Leslie Raymond  
Schering, Sidney S.  
Schiele, Burtrum C.  
Schimpfleg, George T.  
Schirber, Martin J.  
Schirger, Alexander  
Schissel, Gregory A.  
Schmid, John F.  
Schmidt, Herbert W.  
Schmidt, Hilmar R.  
Schmidt, Paul A.  
Schmidt, Paul G.  
Schmidt, Ruben F.  
Schmidt, W. Robert  
Schmidke, Reinhardt L.  
Schmitt, S. C.  
Schmitz, Anthony A.  
Schmitz, Glenn P.  
Schneck, Jack I.  
Schneider, James A.  
Schneider, Lawrence E.  
Schneider, Paul J.  
Schnell, Frederick S.  
Schoch, Robert B.  
Schoenberger, P. B.  
Scholpp, Otto W.  
Scholz, Donald A.  
Schons, Edward  
Schossow, George W.  
Schottler, Max E.  
Schreiner, Leon H.  
Schroder, Charles H.  
Schroedenstein, Hugo F.  
Schroeder, Albert J.  
Schroepel, John E.  
Schuldt, Frederick C.

# ALPHABETIC ROSTER

Schultz, Alvin L. Minneapolis  
 † Schultz, J. Albert. Albert Lea  
 Schultz, J. Harold. Minneapolis  
 Schultz, Peter J. Minneapolis  
 † Schulze, Albert G. St. Paul  
 Schulze, William M. Minneapolis  
 Schumacher, John W. Robbinsdale  
 Schutz, John W. Anoka  
 Schutz, Elmer S. Mountain Lake  
 Schwartz, E. Robert. Minneapolis  
 Schwartz, Virgil J. Minneapolis  
 Schweiger, Theodore R. Hibbing  
 Schwyzer, Arnold G. St. Paul  
 Schwyzer, Hanns C. St. Paul  
 Schwyzer, Marguerite. St. Paul  
 Sciarra, Paschal A. Rochester  
 Scimeca, William B. Rochester  
 Scott, Eugene E. St. Paul  
 Scott, Horace G. Minneapolis  
 Scudamore, Harold K. Rochester  
 Seaberg, John A. Minneapolis  
 Seashore, R. T. Duluth  
 † Seay, James Elbert, III. Big Spring, Texas  
 † Sebrechts, Paul. Great Lakes, Ill.  
 Seery, Thomas M. Austin  
 Seham, Max. Minneapolis  
 Seifert, Milton H. Excelsior  
 Seifert, Otto J. New Ulm  
 Sekhon, Mohan S. St. Paul  
 † Selby, John B. Rochester  
 Selck, Wolfgang. Minneapolis  
 Seldon, Thomas H. Rochester  
 Seljeskog, S. R. Minneapolis  
 Sells, Richard J. No. St. Paul  
 Selmo, Joseph D. Norwood  
 Semsch, Robert D. Minneapolis  
 † Senkler, George E. St. Paul  
 † Senn, Edward W. Owatonna  
 Sethre, Arthur E. Fergus Falls  
 Setzer, Robert J. St. Paul  
 Shandorf, James F. Minneapolis  
 Shannon, William R. St. Paul  
 Shaperman, Eva P. Minneapolis  
 Shapiro, Sidney K. Minneapolis  
 Sharp, David V. Minneapolis  
 Sharpe, Wendell S. Minneapolis  
 Shaver, Ward. Fergus Falls  
 Shaw, Howard A. Minneapolis  
 Shea, Andrew W. Minneapolis  
 Sheedy, Chester L. Austin  
 Shelandor, Marcus I. St. Paul  
 Sheldon, Warren N. Loraine, Ohio  
 † Shellman, John L. Pacific Palisades, Cal.  
 Sheppard, Charles G. Hutchinson  
 Sher, David A. Virginia  
 Sher, Lewis. Minneapolis  
 Sherman, Alfred G. Albert Lea  
 Sherman, Carnot H. Bayport  
 Sherman, Charles L. Luverne  
 Sherman, Lloyd F. Minneapolis  
 Sherman, Royal V. Minneapolis  
 † Sherwood, George E. Red Wing  
 Shick, Richard M. Kinball  
 Shields, Jack W. Rochester  
 Shillington, Maurice A. Minneapolis  
 † Shirai, Shohel. Fort Harrison, Indiana  
 Shori, Jacob. St. Paul  
 Shronts, John F. Minneapolis  
 † Siddell, Franklin D. Butte, Montana  
 Siegel, Clarence. St. Paul  
 Siegel, John S. Virginia  
 Siegmann, William C. Minneapolis  
 Siefert, R. G. Rochester  
 Silas, Ralph M. Minneapolis  
 † Silver, Arthur W. Southbridge, Mass.  
 Silver, John D. Minneapolis  
 Simson, Carl. Barnesville  
 Simmonds, Harry N. Prior Lake  
 Simmons, William Henry. Lexington, Ky.  
 Simons, Bernard H. Chaska  
 Simons, Edwin J. Minneapolis  
 † Simons, Alexander H. Minneapolis  
 Simons, J. St. Paul  
 Simonson, Donald B. Minneapolis  
 Simonson, Kinsey MacL. Rochester  
 † Simpson, Ellery D. Phoenix, Ariz.  
 Sinamark, Andrew. Hibbing  
 Singer, Benjamin J. St. Paul  
 Sinykin, Melvin B. Minneapolis  
 Siperstein, David M. Minneapolis  
 Sisler, Harvey E. St. Cloud  
 Sisler, Clifford E. Grand Rapids  
 † Sivertsen, Andrew. Minneapolis  
 † Sivertsen, Ivar. Minneapolis  
 Sjoeding, J. Donald. Mankato  
 Sjoström, Lawrence E. St. Peter  
 Skafle, William F. Little Falls  
 Skaug, Harold M. Chatfield  
 Skinner, Abbott. St. Paul  
 † Skinner, Harvey O. St. Paul  
 Skjold, Arthur C. Minneapolis

Skogerbee, Rudolph B. Karlstad  
 Slater, Sidney A. Worthington  
 Slocumb, Charles H. Rochester  
 Smid, Arthur C. Rochester  
 Smiley, John T. Minneapolis  
 Smisek, Elmer A. St. Paul  
 Smisek, Frank M. Minneapolis  
 Smith, Adam M. Minneapolis  
 Smith, Archie M. Minneapolis  
 Smith, Baxter A. Minneapolis  
 Smith, Cyril M. Duluth  
 Smith, Donald V. Blue Earth  
 † Smith, Frederick L. Rochester  
 Smith, George R. Hutchinson  
 Smith, Graham G. Minneapolis  
 Smith, Harry J. Lake Crystal  
 † Smith, Homer R. Minneapolis  
 Smith, John L. Rochester  
 Smith, Lloyd A. Willmar  
 Smith, Lucian A. Rochester  
 † Smith, Margaret I. Gardena, Calif.  
 Smith, Meredith P. Rochester  
 † Smith, Myron W. Red Wing  
 Smith, Norvin R. Willmar  
 Smith, Paul M. Lake Crystal  
 Smith, Reginald A. Rochester  
 Smith, Ross H., Jr. Rochester  
 Smith, Theodore S. Minneapolis  
 Smith, Vernon D. E. St. Paul  
 Smith, Wallace R. Grand Marais  
 Smith, William G. Rochester  
 Smith, William T. Minneapolis  
 Smorstok, Matthew B. Monticello  
 Smyth, John J. Lester Prairie  
 Snider, Howard R. Mankato  
 Snyder, Clifford D. Kiester  
 Snyder, George W. St. Paul  
 Snyder, Omar E. Elberton  
 Soderling, Ragnar T. Minneapolis  
 Sogge, Ludwig L. Windom  
 Solbert, Olof I. St. Paul  
 † Solmer, A. E. J. Mankato  
 Solhaug, Samuel B., Sr. Minneapolis  
 Solhaug, Samuel B., Jr. Minneapolis  
 † Solsem, Frederick N. S. Spicer  
 Solvason, Harold M. Minneapolis  
 Sommerdorf, Vernon L. St. Paul  
 Sommerness, M. Duane. Fergus Falls  
 Sommers, Ben. St. Paul  
 Sommersville, Robert L. Rochester  
 Sonnesyn, Nels N. Lake Sueur  
 Sontag, David W. Lake City  
 Sorem, Milton B. St. Paul  
 Sorum, F. T. Willmar  
 Soshea, John W. Rochester  
 Soucheray, Philip H. St. Paul  
 Soule, Edward H. Rochester  
 Souther, Benjamin B. St. Paul  
 Sowada, Ernest J. St. Paul  
 Spain, W. Thomas. Princeton, N. J.  
 Spang, Anthony J. Duluth  
 Spang, James S. Duluth  
 Spang, William M. Duluth  
 Spano, Joseph P. Minneapolis  
 Spear, Harold C. New Haven, Conn.  
 Spencer, Bernard J. Minneapolis  
 † Sperl, Michael P., Jr. Rochester  
 Spink, Wesley W. Minneapolis  
 Sponsel, Kenneth H. Minneapolis  
 Sprafka, Gregory A. St. Paul  
 Sprafka, Joseph L. St. Paul  
 Sprafka, Joseph M. St. Paul  
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 † Spratt, Charles N. Minneapolis  
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 Stahl, George W. Austin  
 Stahler, Paul A. Jordan  
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 † Steiner, Leon E. Philadelphia, Pa.  
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 Stensgaard, Kermit L. Thief River Falls  
 Stenstrom, Annette. Minneapolis  
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Sterner, John J. St. Paul  
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 Stevenson, Basil M. Pulaski  
 Stevenson, Frank W. Faribault  
 Stewart, Alexander. St. Paul  
 Stewart, Donald E. Crookston  
 Stewart, Marvin J. Minneapolis  
 Stewart, Rolla I. Minneapolis  
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 Stillwell, George G. Rochester  
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 Stolpestad, Herbert L. St. Paul  
 Stolz, Robert C. Minneapolis  
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 Stone, Norman F. Minneapolis  
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 Stoy, Robert A. Little Falls  
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 Stransky, Theodore W. Owatonna  
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 † Strathern, Fred P. St. Peter  
 † Strathern, Moses L. Gilbert  
 Stratte, Alf K. Pine City  
 Stratte, Harold C. Windom  
 Strauchler, Jonas. Belview  
 Straus, M. L. St. Paul  
 Strauss, Eugene C. Duluth  
 Street, Bernard. Northfield  
 Streitz, John M. Duluth  
 Strem, Edward L. St. Paul  
 Strewler, Gordon J. Duluth  
 Strickler, Jacob H. Minneapolis  
 Strobel, William G. Duluth  
 Stroebel, Charles F., Jr. Rochester  
 Strom, Gordon W. Minneapolis  
 Stromgren, Delph T. Minneapolis  
 Stromme, William B. Minneapolis  
 Strunk, Clarence A. Minneapolis  
 Studer, Donald J. Faribault  
 Stuhler, Louis G. Rochester  
 Stuhr, John W. Stillwater  
 Sturges, Robert L. Minneapolis  
 Sturley, Rodney F. St. Paul  
 † Subby, Walter. Minneapolis  
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 Sullivan, Raymond M. Minneapolis  
 Sullivan, Robert E. Minneapolis  
 Sutherland, Harry N. Ely  
 Sutherland, W. H. New London  
 Sutton, Harris R. Hoffman  
 Svare, Gerhart T. Rochester  
 Svien, Hendrik J. Rochester  
 Swain, Francis M. Minneapolis  
 † Swanson, John A. St. Paul  
 Swanson, Lawrence J. St. Paul  
 Swanson, Roy E. Minneapolis  
 Swedberg, William A. Duluth  
 Swedenburg, Paul A. Glenwood  
 Sweetser, Horatio B. Minneapolis  
 Sweetser, Theodore H., Sr. Minneapolis  
 Sweetser, Theodore H., Jr. Minneapolis  
 † Sweitzer, Samuel E. Minneapolis  
 † Swendsen, Carl G. Minneapolis  
 Swendsen, James J. St. Paul  
 Swenson, Arnold O. Duluth  
 Swenson, Donald B. Mankato  
 Swenson, Donald B. St. Paul  
 Swenson, Orvie J. Waseca  
 Swenson, Roy G. North Branch  
 Symmonds, Richards E. Rochester  
 Syverson, Jerome. Minneapolis

Tam, Ernest C. Minneapolis  
 Tangen, George M. Minneapolis  
 Tani, George T. St. Paul  
 Tanquist, Edwin J. Alexandria  
 Taylor, Joseph H. Minneapolis  
 Taylor, William E. Minneapolis  
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 Teich, Kenneth W. Duluth  
 Tenners, John E. St. Paul  
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 Tesch, Gordon H. Elk River  
 Tetlie, James P. Duluth  
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 Thayer, Ellsworth A. Fairmont  
 Thiel, Robert D. St. Michael  
 Thiem, Chester E. Mankato  
 Thill, Leonard J. Balaton  
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 Thomas, John V. Duluth  
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Tift, Cyril R.....	St. Paul	Wandke, Otto E.....	Fairmont	Williams, Winfield T.....	Fergus Falls
Tillich, Jan H.....	Rochester	Wangensteen, Owen H.....	Minneapolis	Williamson, Harold A.....	Fairmont
† Tingdale, August C.....	Minneapolis	Ward, Louis E.....	Rochester	Wilmot, Cecil A.....	Litchfield
Tingdale, Carlyle.....	Hibbing	Ward, Percy A.....	Minneapolis	Wilmot, Harold E.....	Litchfield
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Tobin, John D.....	Minneapolis	Wasmund, Clarence W.....	Red Wing	Wilson, James V.....	St. Paul
Tomhave, Wesley G.....	Hibbing	Wasson, Loren E.....	St. Paul	Wilson, Louis.....	Winona
Tongen, Lyle A.....	St. Paul	Waters, Alvin W.....	Minneapolis	Wilson, Robert B.....	Rochester
Toon, Robert W.....	Minneapolis	Watkins, Charles H.....	Rochester	Wilson, Robert E.....	No. Little Rock, Ark.
Torghele, John R.....	Hastings	Watkins, John A.....	Wells	Wilson, Rolland H.....	Winona
Toseland, Noel E.....	Duluth	Watkins, Lee C. Jr.....	Rochester	Wilson, Viktor O.....	Rochester
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Tracht, Robert R.....	St. Paul	Watson, C. Gordon.....	Minneapolis	* † Witlout, Irving G.....	Oslo
Traeger, Carl A.....	Faribault	Watson, Cecil J.....	Minneapolis	Winchell, Paul.....	Minneapolis
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Troup, Richard H.....	Rochester	Watson, Virgil A.....	Detroit Lakes	Winther, Nora M. C.....	Minneapolis
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Tsai, Shih Hao.....	Oak Terrace	Waugh, John M.....	Rochester	Wittich, Frederick W.....	Minneapolis
Tucker, Richard C.....	Minneapolis	† Weaver, Myron Mc.....	Vancouver, B. C., Canada	Witrock, Louis H.....	Watkins
Tudor, Richard B.....	Minneapolis	Weaver, Paul H.....	Faribault	Wohlbrabe, Arthur A.....	Minneapolis
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Tweedy, John A.....	Winona	Webber, Richard J.....	St. Louis Park	Wolf, Alfred H.....	Minneapolis
Tweedy, Robert B.....	Winona	Weber, Harry M.....	Rochester	Wolf, Herman J.....	St. Paul
Twiggs, Leo F.....	Austin	Weber, Lowell W.....	Minneapolis	Wolff, John M.....	Duluth
Twomey, John E.....	Minneapolis	Wedes, Deno J.....	St. Paul	Wolkoff, H. J.....	St. Paul
Ubel, Frank A.....	St. Paul	Weed, Lyle A.....	Rochester	Wollaeger, Eric.....	Rochester
Ude, Walter H.....	Minneapolis	Weeks, Richard E.....	Rochester	Wolstan, Simon D.....	Minneapolis
Uhlen, Charles G.....	Crookston	† Weiner, Alan D.....	Rochester	Wolter, Frederick H.....	Minneapolis
Uihlein, Alfred.....	Rochester	Weir, James F.....	Rochester	Woltjen, Myron J.....	Rushford
Ulrich, Christian A.....	Rochester	Weis, Benjamin A.....	St. Paul	Wolman, Henry Wm. F.....	Rochester
Ulrich, Henry L.....	Minneapolis	Weisberg, Maurice.....	St. Paul	† Wood, Henry C.....	Rochester
† Ulvestad, Harold S.....	Minneapolis	Weisberg, Raphael J.....	Minneapolis	Wood, Lloyd T.....	Forest Lake
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Udine, Cloyd E.....	Minneapolis	Welch, John S.....	Rochester	Woodward, Edward Jr.....	Rochester
Udke, Edwin H. II.....	Rochester	Wellman, William E.....	Rochester	Woolner, Lewis B.....	Rochester
Urborg, Solus E.....	Duluth	Wells, Arthur H.....	Duluth	Word, Harlan L.....	St. Paul
Uterdorfer, Robert W.....	Minneapolis	Wells, Walter B.....	Jackson	Workman, Warner G.....	Tracy
Utz, David C.....	Rochester	Wendland, John P.....	Minneapolis	Woyda, William C.....	Elk River
† Vadheim, Alfred L.....	Tyler	Wendt, H. Paul.....	Thief River Falls	† Wray, William E.....	Campbell
Valentine, Walter H.....	Tracy	Wenner, Waldemar T.....	St. Cloud	Wright, Robert R.....	Austin
Van Bergen, Frederick H.....	Minneapolis	Wente, Harold A.....	Rochester	Wright, Thomas D.....	Minneapolis
Van Cleave, Horatio P.....	Austin	† Wentworth, Albert J.....	Mankato	Wright, William.....	Minneapolis
Van Herik, Martin.....	Rochester	Wenzel, Gilbert P.....	St. Paul	Wright, William S.....	Minneapolis
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Van Rooy, George T.....	Thief River Falls	Wesolowski, Stanley P.....	Minneapolis	Wyatt, Oswald S.....	Minneapolis
Van Ryzin, Donald J.....	Duluth	† West, Catherine C.....	Minneapolis	Wynne, Herbert M. N.....	Minneapolis
Vandever, Harry W.....	Rochester	Westby, Magnus.....	Madison	Yaeger, Wilbert W.....	Marshall
Varco, Richard L.....	St. Paul	Westby, Norval M.....	Madison	† Yanamoto, Joe.....	Oklahoma City, Okla.
Vaughan, Victor M.....	Truman	† Westerman, Alvin E.....	Montgomery	Ylvisaker, Ragnvald S.....	Minneapolis
Vaughn, Louis D.....	Rochester	Westerman, Fred C.....	Montgomery	Yorg, Otto W.....	Minneapolis
Veirs, Dean M.....	St. Paul	Westover, D. E.....	St. Paul	Young, Henry H.....	Rochester
Veirs, Ruby J. S.....	St. Paul	Westrup, John E.....	Lanesboro	Young, John V. W.....	Rochester
Venables, Alexander E.....	St. Paul	Wetherby, Macnider.....	Minneapolis	Young, Thomas O.....	Duluth
Verby, John E.....	Rochester	Wetzel, Earl V.....	St. Paul	Younger, Lewis I.....	Winona
Vermund, Halvor.....	Minneapolis	Wexler, Harold M.....	Minneapolis	Youngren, Everett R.....	St. Paul
Vezina, John C.....	Mapleton	Wheeler, Daniel.....	Duluth	Yue, Wen Y.....	Oak Terrace
Vik, A. Elliott.....	Minneapolis	Wheeler, Robert W.....	Minneapolis	Zachman, Albert H.....	Melrose
Vik, Melvin.....	Anoka	Whisman, Jack Page.....	Rochester	Zachman, Leo L.....	St. Paul
Virgin, Hildegard.....	Caledonia	Whiteacre, John C. II.....	St. Paul	Zagaria, James F.....	St. Paul
Virgin, Mark P.....	St. Wells	White, Asher A.....	Minneapolis	Zahrendt, O. Lewis.....	Minneapolis
Virgin, Richard P.....	Wells	† White, S. Marx.....	Minneapolis	Zarling, V. Richard.....	Minneapolis
Vits, T. M.....	Minneapolis	White, Willard D.....	Minneapolis	Zaworski, Leo A.....	Minneapolis
Vix, Vernon A. L.....	Worthington	Whitesell, Lloyd A.....	Minneapolis	† Zeller, Urban H.....	Mankato
Vogel, Howard A.....	New Ulm	Whitson, Sidney A.....	Albert Lea	Zeller, Erhart E.....	Fairmont
Vollmer, Frederick J.....	Winona	Whittemore, Dexter D.....	Bemidji	Zemmers, Roberts.....	Duluth
† Von Drasek, Joseph.....	Mankato	Widen, Wilford F.....	Minneapolis	Zierold, Arthur A.....	Minneapolis
Vreeland, Oliver H.....	Rochester	Wikoff, Howard M.....	Crookston	Zimmer, J. F.....	Rochester
Wass, Charles W.....	St. Paul	Wilcox, Albert G.....	St. Paul	† Zimmermann Harry B.....	St. Paul
Wagner, Norman W.....	Benson	† Wilder, Kenneth W.....	Minneapolis	Zinter, Ferdinand A.....	Minneapolis
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# General Interest

Minnesota physicians are invited to submit items of "general interest" concerning themselves or their colleagues to MINNESOTA MEDICINE, 2642 University Avenue, St. Paul 14, Minnesota. Only the facts are needed—who? what? where? when? why?—since items are rewritten for uniformity of style.

\* \* \*

Dr. Gordon R. Kamman and attorney Charles Murnane, St. Paul, discussed "Medical-Legal Relationships" at a joint meeting of the Southwestern Minnesota Medical Society and Bar Association in Worthington on April 9.

\* \* \*

Principal speaker at the annual banquet of the sixth annual convention of the Student American Medical Association in Chicago on May 5 was Dr. Walter Judd, congressman from Minnesota.

\* \* \*

Dr. Raymond C. Read, resident assistant in surgery at the University of Minnesota Hospitals, was one of several faculty members who described "Some Outstanding Achievements of Our University" at a one-day institute on March 17 at the university. Dr. Read discussed advances in heart surgery.

\* \* \*

Dr. Carl Fritsche of New Ulm was elected president of the Brown County Medical Society at an early spring meeting of the group. Dr. E. J. Wohlrahe, Springfield, was named vice president, with Dr. Milton Kaiser, New Ulm, secretary-treasurer. Dr. Rolf Hovde, Winthrop, was selected as delegate with Dr. J. E. Schroepfel of Winthrop as alternate.

\* \* \*

An alumni achievement award has been presented to Dr. Malcolm M. Hargraves, Rochester, by his alma mater, Ohio State University College of Medicine. Dr. Hargraves, who received his medical degree at the school in 1933, is now a hematology consultant at the Mayo Clinic and an associate professor in the Mayo Foundation.

\* \* \*

Dr. Sidney O. Hughes, Winona, recently received his certification in internal medicine by the American Board of Internal Medicine. Dr. Hughes has been associated with the Winona Clinic for the past two years.

\* \* \*

Dr. E. A. Meyerding, executive secretary of the Minnesota Tuberculosis and Health Association, was presented with the William C. Anderson service award at a meeting of the American Association for Health, Physical Education and Recreation on March 25 in Chicago. The award was made in honor of Dr. Meyerding's work in furthering health education and health services for Minnesota school children.

\* \* \*

Dr. J. V. Carlson and Dr. Richard Runquist are now established in a new clinic building, which was recently completed for them at Westbrook.

At the end of March Dr. and Mrs. Walter A. Fansler, Wayzata, sailed from Jersey City, New Jersey, bound for the Middle East Medical Assembly, which was held in Beirut, Lebanon, in April. The Fanslers are expected to return to Minnesota in June.

\* \* \*

Dr. Russell M. Wilder, Rochester, emeritus staff member of the Mayo Clinic, was elected president of the National Vitamin Foundation at the annual meeting of the group in New York on March 8.

\* \* \*

Dr. A. W. Graham, Chisholm, has been invited to have an exhibit at the meeting of the American Medical Association at Northwestern University in June. The exhibit, which was shown at the meeting of the Minnesota State Medical Association last year, presents a study of blood pressure in children between the ages of four and eighteen. Information for the study was compiled by Dr. Graham over a period of thirty-nine years.

\* \* \*

Dr. Grafton A. Smith, former clinical instructor in surgery at the University of Minnesota Medical School, has been appointed assistant professor of surgery at the University of Missouri.

\* \* \*

Honorary Minnesota state chairman for Mental Health Week, April 29 to May 5, was Dr. Charles W. Mayo, Rochester, who was appointed to the post by the Minnesota Association for Mental Health.

\* \* \*

Dr. John Anderson, professor and head of the department of pediatrics at the University of Minnesota, conducted a clinic at the opening of a new pediatrics department at Hibbing General Hospital, Hibbing, on March 24. At an evening dinner meeting he presented a discussion of current advances in pediatrics. The hospital's new pediatrics department is equipped to handle thirty-two patients, from infants to sixteen-year-olds. Facilities include isolation rooms, formula preparation room, recreation room and library.

\* \* \*

Dr. James T. Priestley, Rochester, presented the first W. Fulton Gillespie Memorial Lecture at a combined meeting of the American College of Surgeons, the Canadian Medical Association and the University of Alberta faculty of medicine at Edmonton, Alberta, Canada, on April 23.

\* \* \*

More than 125 physicians from all sections of the country attended an eight-day refresher course called Mediclinics of Minnesota, which was held at Fort Lauderdale, Florida, March 5 to 14. Sponsored by the American Academy of General Practice, the course was conducted by a panel of ten instructors from the University of Minnesota Medical School. The course was the first of its type to be offered on a national scale.

(Continued on Page A-34)



# Notes on the Diagnosis and Management of "Dizziness"

## III. Ménière's Syndrome



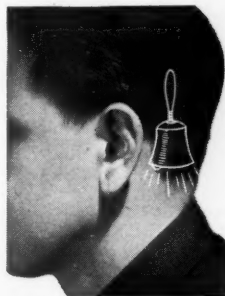
1. Paroxysmal Whirling Vertigo. This consists of sudden attacks of dizziness, often when the patient is at rest or asleep. The patient may feel that he himself is whirling or that fixed objects about him are whirling. The attack usually lasts for a few minutes; occasionally it is severe for weeks or subacute for months.



2. Subtotal Hearing Loss. Deafness will usually affect the high tones and it may be unilateral or bilateral. Sometimes the hearing loss is severe and also progressive.



3. Tinnitus. This is usually unilateral and present in the ear with greater hearing loss and is without a definite pattern.



Fewer diagnostic errors<sup>1</sup> will result if a "triad of symptoms" is required of patients with suspected Ménière's syndrome. These are the symptoms of typical Ménière's syndrome:

1. Severe paroxysmal vertigo which may be of two types; either the patient feels that he is whirling or that objects about him are whirling.
2. Fluctuating subtotal hearing loss, usually affecting the higher tones, is noted at the same time as vertigo.
3. Tinnitus, usually unilateral, is associated with the deafness and dizziness.

With Ménière's syndrome there is no definite localization<sup>2</sup> by the Bárány (vestibular reaction) test and results of the caloric test are not diagnostic. Physical examination should rule out disease of the central nervous or cardiovascular systems before a diagnosis is made.

"Treatment with Dramamine®... is effective<sup>3</sup> in aborting and preventing attacks of Ménière's syn-

drome... will prevent or arrest attacks of vertigo. It will also reduce the intensity of the tinnitus and so may save some of the hearing in the affected ear."

Dramamine is recommended for Ménière's syndrome as the sole therapy or in combination with other treatment programs.

It is a therapeutic standard also for motion sickness and is useful for relief of nausea and vomiting of radiation sickness and fenestration procedures.

Dramamine (brand of dimenhydrinate) is supplied in tablets (50 mg.); Supposicones® (100 mg.); ampuls (250 mg.); liquid (12.5 mg. in each 4 cc.). G. D. Searle & Co., Research in the Service of Medicine.

1. DeWeese, D. D.: Symposium: Medical Management of Dizziness. The Importance of Accurate Diagnosis, Tr. Am. Acad. Ophth. 58:694 (Sept.-Oct.) 1954.
2. Jackson, C., and Jackson, C. L. (editors): Diseases of the Nose, Throat, and Ear, Philadelphia, W. B. Saunders Company, 1945, pp. 368; 414.
3. Queries and Minor Notes: Ménière's Syndrome, J.A.M.A., 141:500 (Oct. 15) 1949.

A new edition of "Dramamine Reviews and Abstracts," containing digests of more than 100 recent articles, is available on request to...

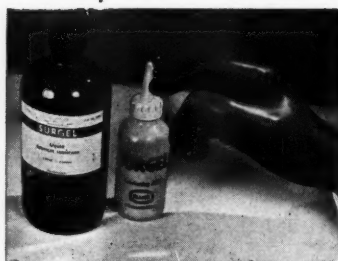
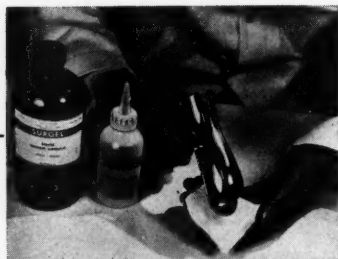
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(Continued from Page 358)

The Mediclinics of Minnesota faculty included Dr. Harold F. Buchstein, Dr. Harry B. Hall, Dr. Arthur C. Kerkhof, Dr. Ames W. Naslund, Dr. O. L. Norman Nelson, Dr. Owen F. Robbins, Dr. Albert V. Stoesser, Dr. Robert J. Tenner, Dr. Richard L. Varco and Dr. Edgar A. Webb.

\* \* \*

Dr. F. H. Baumgartner and Dr. R. J. Salk now have their offices in a newly constructed fourteen-room clinic building in Albany. The new structure is known as the Albany Medical Center.

\* \* \*

The newly formed Lay Society of the Twin Cities Diabetes Association is conducting a membership drive aimed at an estimated 15,000 to 20,000 diabetic persons in the Twin Cities area. The society is an offshoot of the medical organization, the Twin Cities Diabetes Association, and will take over sponsorship of the annual diabetes detection drive which physicians have sponsored in the past. The group will devote its attention to educating the public and diabetic persons about the disease.

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Dr. C. R. Myre and Dr. R. J. Lindeman have moved their offices into a new seventeen-room clinic building in Paynesville. The one-story structure, which was recently completed, measures 46 by 56 feet. Facilities are available for a third physician.

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Four new medical consultants have been named to the Mayo Clinic staff. They are Dr. John A. Dyer, ophthalmology; Dr. Joseph M. Kiely, general medicine; Dr. Owings W. Kincaid, radiology, and Dr. Don C. Purnell, general medicine.

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Six Minnesota scientists recently were awarded a total of \$53,000 for cardiac and vascular disease research, according to an announcement by Dr. James A. Cosgriff, Olivia, president of the Minnesota Heart Association. The recipients were Dr. H. Mead Cavert, Dr. Hiroshi Kuida and Dr. Victor Lorber, all of the University of Minnesota Medical School; Dr. Alan P. Thal and Dr. Richard DeWall, both of University Hospitals, and Dr. Newton C. Birkhead of the Mayo Foundation, Rochester.

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Dr. Frederick P. Moersch, special consultant in neurology at the Mayo Clinic, Rochester, retired from active service on April 1 after thirty-six years on the clinic staff. A graduate of the University of Minnesota Medical School in 1913, Dr. Moersch joined the Mayo Clinic in 1920. In 1947 he became head of a section of neurology, which position he held until 1950, when he became a senior consultant. He has been president of the American Board of Psychiatry and Neurology, a member of the council of the American Psychiatric Association, and vice president of the American Neurological Association. Dr. Moersch has contributed more than seventy-eight papers to the literature on neurology and psychiatry and is the author of *Neurology and Psychiatry for Nurses*.